

# SR-68, Bangerter Highway through Saratoga Springs

Salt Lake and Utah Counties, Utah

## Environmental Assessment and 4(f) Evaluation

Submitted Pursuant to:  
42 USC 4332(2)(C) and 49 USC 303

U.S. Department of Transportation  
Federal Highway Administration  
and  
Utah Department of Transportation

Project No. HPP-TI-STP-0068(42)26

April 11, 2007





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## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>ES-1</b>
<b>CHAPTER 1 - PURPOSE AND NEED.....</b>	<b>1-1</b>
1.1 PROPOSED ACTION .....	1-1
1.1.1 Roadway Cross Section .....	1-4
1.1.2 Design Considerations .....	1-4
1.1.3 Wildlife Crossings .....	1-4
1.1.4 Intersection Layout .....	1-4
1.2 PURPOSE OF PROJECT .....	1-4
1.3 NEED FOR PROJECT .....	1-4
1.3.1 Capacity, Transportation Demand and Safety.....	1-5
1.3.1.1 Existing Capacity of SR-68 and Projected Transportation Demand ..	1-5
1.3.1.2 Level of Service at Intersections.....	1-6
1.3.2 Safety .....	1-8
1.3.2.1 Existing Crash Rate .....	1-8
1.3.2.2 Projected Crash Rate without Project.....	1-9
1.4 SUMMARY OF PROJECT NEED .....	1-9
<b>CHAPTER 2 - ALTERNATIVES .....</b>	<b>2-1</b>
2.1 PROPOSED ACTION .....	2-1
2.1.1 Roadway Cross Section .....	2-1
2.1.2 Design Considerations .....	2-1
2.1.3 Wildlife Crossings .....	2-1
2.1.3.1 Wildlife Crossing #1 .....	2-1
2.1.3.2 Wildlife Crossing #2 .....	2-2
2.1.3.3 Wildlife Crossing #3 .....	2-2
2.1.4 Intersection Layout .....	2-2
2.2 INDEPENDENT UTILITY AND LOGICAL TERMINI .....	2-2
2.2.1 Pony Express Parkway (southern terminus) .....	2-8
2.2.2 Bangerter Highway (northern terminus) .....	2-8
2.3 ALTERNATIVES CONSIDERED, SCREENING ANALYSIS, AND RESULTS ....	2-8
2.3.1 Alternatives Considered .....	2-9
2.3.1.1 No Build Alternative .....	2-9
2.3.1.2 TSM/TDM Alternative .....	2-11
2.3.1.3 Transit Only Alternative .....	2-12
2.3.1.4 Combination of TSM/TDM, Transit and Three Lane Alternatives ....	2-12
2.3.1.5 Seven Lane Alternative.....	2-12
2.3.1.6 Three Lane (Center Turn Lane) Alternative .....	2-13
2.3.1.7 Five Lane Alternative (Proposed Action) .....	2-13
2.3.2 Summary of Traffic Analysis for Alternatives Screening.....	2-15
2.4 ALTERNATIVES TO BE STUDIED IN THE EA .....	2-16
2.5 RELATED PROJECTS.....	2-16



## LIST OF TABLES

Table 1-1, SR-68 Existing LOS as Related to Speed and Daily Traffic .....	1-6
Table 1-2, Existing and 2030 No Build SR-68 Roadway Levels of Service .....	1-6
Table 1-3, Intersection LOS as Related to Delay .....	1-7
Table 1-4, SR-68 Existing and 2030 No Build PM Peak Hour Intersection LOS .....	1-7
Table 1-5, SR-68 Existing and Expected Crash Rate on Similar Roads.....	1-9
Table 2-1, No Build Alternative Assumptions.....	2-11
Table 2-2, Alternatives Screening Summary.....	2-14
Table 2-3, Daily Volume Level of Service Criteria.....	2-15
Table 2-4, Alternative Analysis.....	2-15

## LIST OF FIGURES

Figure 1-1, SR-68 Project Vicinity Map .....	1-2
Figure 1-2, Project Corridor Map.....	1-3
Figure 1-3, Geometric and Operational Roadway Deficiencies .....	1-10
Figure 1-4, Total Vehicular Crashes, Years 2001-2005.....	1-11
Figure 1-5, Crashes with Animals, Years 2001-2005.....	1-12
Figure 2-1, Typical Proposed 5-Lane Roadway with sidewalk cross section.....	2-3
Figure 2-2, Typical Proposed 5-Lane Roadway (without sidewalk) cross section .....	2-4
Figure 2-3, Proposed Action .....	2-5
Figure 2-4, Proposed Wildlife Crossings.....	2-6
Figure 2-5, Proposed Action with Intersection improvements .....	2-7
Figure 2-6, No Build Alternative Assumptions.....	2-10

## REFERENCES

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### LIST OF TERMS

## APPENDIX A – PROPOSED ACTION DRAWINGS

## APPENDIX B – CORRESPONDENCE





## SR-68, BANGERTER HIGHWAY TO SARATOGA SPRINGS UTAH AND SALT LAKE COUNTIES, UTAH

### EXECUTIVE SUMMARY

#### PROJECT OVERVIEW

This Environmental Assessment (EA) is being prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and is sponsored by the Utah Department of Transportation (UDOT) and the Federal Highway Administration (FHWA). It presents the analyses on how proposed roadway improvements on SR-68 from Bangerter Highway to the future Pony Express Parkway in Saratoga Springs will affect the natural and built environments. The EA discloses information about existing resources and identifies potential effects resulting from the Proposed Action. It serves as documentation of the environmental review process including public and agency input on the Proposed Action, the recommended design for roadway improvements, potential effects and recommended mitigation measures.

The Proposed Action on SR-68 is located in northern Utah County and southern Salt Lake County. The 10.3 mile Proposed Action begins just south of the future Pony Express Parkway in Saratoga Springs, milepost (MP) 30.5, and extends north to Bangerter Highway at MP 40.8. It serves the residential and commercial traffic of the urbanized cities of Saratoga Springs, Eagle Mountain, Lehi, Bluffdale and surrounding areas.

#### PURPOSE AND NEED

##### Purpose

The purpose of this Proposed Action is to:

- Increase SR-68 capacity to accommodate existing and 2030 future traffic and reduce congestion along the project corridor; and
- Increase transportation safety for all users by improving SR-68 in accordance with current design standards, adding bicycle lanes and shoulders, improving intersections; constructing medians in some locations, and improving wildlife corridor connectivity.

##### Need

The need for this Proposed Action is based on the following factors:

- Predicted 2030 peak hour traffic demand exceeds available transportation capacity;
- SR-68 must provide a safe transportation facility for existing commercial and residential development; and
- Currently bicycle and pedestrian facilities are limited and are desired to accommodate users.



## Objectives

Due to the anticipated problems caused by forecast traffic volumes and crashes, UDOT proposes to make roadway improvements on SR-68 within the Proposed Action study area limits. The objectives for these improvements include the following:

- Improve connectivity between existing and proposed transportation arterials and highways;
- Provide a transportation infrastructure that meets current roadway standards and will be an asset to the community;
- Provide a transportation facility that operates at an acceptable level of service (LOS) and meets UDOT's goal of LOS D;
- Maximize long-term roadway capacity by managing access concurrent with UDOT policies and existing and planned land uses; and
- Improve emergency response time and availability of emergency response teams.

## ALTERNATIVES

A total of seven alternatives were considered as possible solutions to address the transportation need, including:

- No Build;
- Transportation System Management (TSM) and Transportation Demand Management (TDM);
- Transit Only;
- Combination of TSM/TDM, Transit and Three Lane Alternatives;
- Seven Lane Alternative, three northbound and three southbound travel lanes with a center turn lane;
- Three Lane Alternative, adding only a center turn lane; and
- Five Lane Alternative, five lanes with two northbound and two southbound travel lanes with a center turn lane.

The alternatives considered were analyzed through a screening process which evaluated their ability to meet the project's purpose and need and objectives. For the mainline, evaluation of alternatives relied on a screening level analysis of projected roadway LOS based on daily traffic volumes.

Alternatives that would likely result in an unacceptable LOS E or F for the majority of the corridor were eliminated from further consideration. Alternatives that resulted in a LOS D or better, but that were not viewed as favorable, were eliminated if other alternatives with fewer environmental impacts resulted in acceptable levels of service.

Based on the analysis and comparison of the Project options, the Five Lane Alternative will provide adequate capacity to reduce congestion to an acceptable level. Roadway improvements combined with congestion relief will enhance safety on the roadway. This





alternative was screened against environmental concerns associated with potential right-of-way and relocation impacts to adjacent properties. Environmental screening determined that the proposed five-lane footprint would result in lower environmental impacts than the larger, seven-lane footprint considered above. Therefore, the five-lane alternative will be studied in the Environmental Assessment and is the Proposed Action.

### **DESCRIPTION OF THE PROPOSED ACTION**

The Proposed Action consists of widening SR-68 from two/three lanes to five lanes with two through lanes in each direction and a center turn lane. It extends 10.3 miles beginning just south of the future Pony Express Parkway intersection with SR-68 (MP 30.5) in Saratoga Springs and ending at Bangerter Highway in Bluffdale (MP 40.8). Principle features of the Proposed Action are described below:

The roadway cross section includes two general purpose lanes in each direction and a center lane to accommodate left turn movements. Each side of the roadway will have shoulders, bicycle lane within the shoulder, curb and gutter and a park strip with sidewalk along the majority of the Project. Sidewalks will not be constructed as part of the project in Saratoga Springs, where developers are required to construct them.

In the urban area of Bluffdale, the roadway surface grade and curves will be designed and constructed to meet current AASHTO design standards for a 50 mph design speed. Outside of Bluffdale the roadway will be designed for 60 mph design speed. In addition, signage will be improved and cross-street and driveway accesses will be modified and/or controlled to improve the long-term use of the roadway.

Wildlife crossings will be constructed at three locations along the Project corridor. The crossings will include fencing to direct wildlife to these under crossings. For each of the wildlife crossings, fencing will be placed adjacent to the ends of each structure and run along the potential right-of-way line on both sides of SR-68.

### **AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION**

Table ES-1 summarizes the existing conditions, potential effects, and recommended mitigation measures for the proposed SR-68 Corridor Project. Table ES-2 summarizes the potential temporary construction related impacts and mitigation measures. For construction, there will be no impacts for the No Build Alternative and is not included in the table.



**TABLE ES-1, SUMMARY OF NO BUILD AND PROPOSED ACTION ALTERNATIVE, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION**

Environmental Issues and Description	Environmental Consequences		Mitigation
	No Build	Proposed Action	
<b>Land Use</b> Existing land uses along the project corridor include rural residential, institutional (military), agricultural, business/commercial, and undeveloped. Within Saratoga Springs, the main land use is residential, agricultural, and commercial. The main commercial area is at the intersection of SR-68 and SR-73. Camp Williams, operated by the Utah National Guard, is located at the Utah and Salt Lake County border on both sides of SR-68. The land uses in Bluffdale are mainly residential with some commercial.	No impact.	No impact.	None.
<b>Farmland</b> Farmlands, including Prime and Unique and Agricultural Protection Areas, are located along the corridor. Farmlands are irrigated by a system of canals and ditches.	No impact.	A total of 20.5 acres of farmland will be converted to non-agricultural uses (roadway). A total of 6.2 acres of Prime and Unique farmland and 14.3 Agricultural Protection Areas will be impacted. No farmland areas will be divided; they will remain operational and economically productive.	Access will be maintained to all farmlands along the corridor. The irrigation features and structures impacted will be restored.



**TABLE ES-1, SUMMARY OF NO BUILD AND PROPOSED ACTION ALTERNATIVE, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION**

Environmental Issues and Description	Environmental Consequences		Mitigation
	No Build	Proposed Action	
<b>Social Resources</b> Social resources within the project study area include recreation resources, public facilities, utilities and canals, Environmental Justice, right-of-way and relocations.	No impact.	<u>Recreation Resources</u> The Proposed Action will not impact existing or planned recreation resources. <u>Public Facilities</u> The Proposed Action will have no long-term impacts to public facilities (Camp Williams, Bluffdale City Cemetery and Public Works Shop). <u>Utilities and Canals</u> The Proposed Action will impact a number of utilities that exist within the roadway prism. Also, the Saratoga Canal, Utah Distributing Canal, Provo Reservoir Canal, and Utah and Salt Lake Canal, will be crossed. About 850 feet of the South Jordan canal will be piped. <u>Environmental Justice</u> The Proposed Action will not disproportionately impact minority or low-income populations. <u>Right-of Way and Relocations</u> The Proposed Action will require the relocation of four residences (another residence and business is pending for a total of six). A total of 161 parcels will be impacted along the project corridor resulting in 40.9 acres of right-of-way.	<p>None. Wildlife crossing #3 will be designed to allow for a future trail crossing.</p> <p>None.</p> <p><u>Utilities and Canals</u> Utilities that need to be relocated will be identified during design. UDOT will coordinate with the various utility companies to ensure that they are restored and remain operational as part of the Proposed Action.</p> <p>All canals that will be crossed by the Proposed Action will be coordinated with during the design phase.</p> <p>None.</p> <p><u>Right-of-Way and Relocations</u> All property will be acquired within state and local procedures and policies. The Uniform Relocations Assistance and Real Property Acquisition Policies Act will be followed during the right-of-way process of this project.</p>



**TABLE ES-1, SUMMARY OF NO BUILD AND PROPOSED ACTION ALTERNATIVE, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION**

Environmental Issues and Description	Environmental Consequences		Mitigation
	No Build	Proposed Action	
<b>Economics</b> Utah and Salt Lake Counties have experienced a strong job growth and very low unemployment. Residential and commercial development has been strong within the project corridor. These trends are expected to continue into the future.	No impact.	No impact.	None.
<b>Pedestrian and Bicyclist Considerations</b> The project corridor is used by bicycle enthusiasts; no bike lanes exist along SR-68 within the project corridor. Bicyclists use the narrow shoulder where available or are forced to use the travel lane. Sidewalks are intermittent within both Saratoga Springs and Bluffdale.	No impact. However, no bike lanes would be added for this alternative. Sidewalks would not be added. Bicycle and pedestrian safety conditions would not be improved.	A five foot bike lane will be added along the shoulders of the as part of the Proposed Action. Also, sidewalks will be constructed within Bluffdale. Sidewalks are anticipated in Saratoga Springs when development occurs.	None. Wildlife crossing #3 will be designed to allow for a future trail crossing.
<b>Air Quality</b> The Proposed Action is consistent with the regional planning efforts of the Wasatch Front Regional Council and the Mountainland Association of Government long range transportation plan.	Traffic congestion will increase which may have an adverse affect on air quality.	No impact.	None.



**TABLE ES-1, SUMMARY OF NO BUILD AND PROPOSED ACTION ALTERNATIVE, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION**

Environmental Issues and Description	Environmental Consequences		Mitigation
	No Build	Proposed Action	
<b>Noise</b> FHWA's Traffic Noise Model was used to predict existing and future noise levels along the project corridor. The main noise source along the corridor is traffic noise. UDOT's current noise policy directs how noise impacts and abatement are to be determined.	No impact. However, noise levels will continue to increase as the number of vehicles using SR-68 increases.	A total of 122 noise impacts will occur for the Proposed Action; 115 residential units, one church, one cemetery, and five commercial properties.	Two noise walls are reasonable and feasible along the project corridor. The 1 <sup>st</sup> noise wall would be located at the Dalmore Meadows subdivision on the east side of SR-68; the 2 <sup>nd</sup> noise wall would be located at the Hillcrest Condominiums on the west side of SR-68. To be effective, the 1 <sup>st</sup> noise wall needs to be a minimum of eight feet high and the 2 <sup>nd</sup> at least ten feet high. The heights were modeled and show that they would reduce noise levels by at least 5 dBA at these locations. A balloting effort for impacted residential units will happen before the decision document. Within Bluffdale, no noise walls are considered reasonable and feasible due to costs, access issues to SR-68, and the ability to reduce noise levels by 5 dBA. To be effective noise walls must be contiguous.
<b>Geology, Soils, and Topography</b> The project study area runs along the western edge of northern Utah and southern Salt Lake Counties. The areas topography ranges from steep to shallow.	No impact.	No impact.	None.



**TABLE ES-1, SUMMARY OF NO BUILD AND PROPOSED ACTION ALTERNATIVE, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION**

Environmental Issues and Description	Environmental Consequences		Mitigation
	No Build	Proposed Action	
<b>Floodplains</b> Only one floodplain exists near the project study area. It is called Wood Hollow drainage and originates in the Traverse Mountains in Camp Williams. This floodplain is located west of the project corridor and does not cross over to the east side.	No impact.	No impact.	None.
<b>Water Quality</b> The only open water sources along the project corridor are associated with canals and ditches. Groundwater elevations vary in the project area. There are no well protection zones along the corridor.	No impact.	No impact.	As part of the construction, detention basins will be constructed to help filter and clean storm water runoff before it is discharged to a receiving water (usually a canal or ditch). These detention basins have been sized based on preliminary design; they are shown in Appendix A.
<b>Wetlands and Waters of the U.S.</b> Only one wetland area is located along the project corridor. It is found along the banks of the Provo Reservoir Canal and is approximately 0.17 acres in size. The project corridor crosses or is located near seven Waters of the U.S. These include an Unnamed Irrigation Ditch, Utah Distributing Canal (two locations), Provo Reservoir Canal (two locations), Beef Hollow, Utah and Salt Lake Canal, South Jordan Canal (located adjacent to SR-68 – does not cross the roadway), and Rose Creek.	No impact.	The Proposed Action will impact approximately 0.03 acres of the wetland area. A wildlife crossing will be constructed at this location which will impact the wetland. All the Waters of the U.S. (except the Unnamed Irrigation Ditch) will be impacted by the Proposed Action.	A Clean Water Act Section 404 permit will be obtained prior to the commencement of construction activities. Mitigation may include in-lieu fee and/or revegetation of canal and disturbed areas. UDOT will continue to coordinate with the Army Corps of Engineers.





**TABLE ES-1, SUMMARY OF NO BUILD AND PROPOSED ACTION ALTERNATIVE, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION**

Environmental Issues and Description	Environmental Consequences		Mitigation
	No Build	Proposed Action	
<b>Wildlife and Utah Sensitive Species</b> There is a high rate of wildlife crashes along the project corridor. Deer trying to reach the Jordan River from Camp Williams and other undeveloped areas to the west need to cross SR-68 to reach their main water source, the Jordan River.	No impact.	Three wildlife crossings will be constructed as part of the Proposed Action. These crossings will include wildlife fencing to help channel deer into them. These crossings will help to improve safety along SR-68 and reduce the number of crashes.	Three wildlife crossings are included as part of the Proposed Action.
<b>Threatened and Endangered Species</b> Bald eagles are the only threatened and endangered species that have the potential to occur along the project corridor; none were identified within the project corridor.	No impact.	There will be no effect on T&E species.	None.
<b>Invasive Species</b> Invasive weed species have the potential to exist along the project corridor in undeveloped areas. They may be spread as part of the construction activities.	No impact.	No impact.	UDOT Special Provision 02945S – Invasive Weed Control will be used as part of the construction phase of this project. The Contractor will be required to use this specification to minimize the potential to spread invasive weed species.
<b>Historic and Archaeological Resources</b> Along the 10.3 mile corridor, there are 22 historic and archaeological resources. These include canal crossings, historic houses, and archaeological sites.	No impact.	The Proposed Action will have an Adverse Effect on four historic houses; all in Bluffdale. It will have a No Adverse Effect on any of the canal crossings.	A Memorandum of Agreement will be executed between UDOT, FHWA, and SHPO that will include mitigation measures. An Intensive Level Survey will be conducted at the four Adverse Effect historic properties. This will include documentation of the structures with maps and photographs.



**TABLE ES-1, SUMMARY OF NO BUILD AND PROPOSED ACTION ALTERNATIVE, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION**

Environmental Issues and Description	Environmental Consequences		Mitigation
	No Build	Proposed Action	
<b>Hazardous Waste</b> Two areas have been identified as having underground storage tanks. These are at the LDS Church Welfare Service site in Lehi and the Maverick County Store (#266) in Bluffdale.	No impact.	No impact.	None. The Contractor will be required to follow UDOT Standard Specification 01355 – Environmental Protection.
<b>Visual Quality</b> The project area is located in a rural area that is rapidly being urbanized with residential and commercial development. The views in the area are of mountains to the west and east.	No impact.	No impact.	None.



**TABLE ES-2, SUMMARY OF POTENTIAL CONSTRUCTION IMPACTS AND MITIGATION**

<b>Impacts</b>	<b>Proposed Action</b>	<b>Mitigation</b>
<b>Traffic and Access</b>	<p>Short term and temporary impacts to motorists and pedestrians from construction traffic delays.</p> <p>It is unknown if any detours will be required at this time.</p> <p>Temporary impact to access to and from adjacent properties.</p> <p>Access and/or parking may be modified during construction.</p>	<p>The Contractor will be required to follow the Manual on Uniform Traffic Control Devices.</p> <p>Construction activities will be planned to minimize traffic detours, congestion, and delays.</p> <p>Advance notice will be given for all road closures (see public information and coordination), traffic detours, congestion/delays, and reduced use of the existing roadway as practicable.</p> <p>Property and business owners will be able to report construction problems and should be able to expect resolution in a timely manner.</p> <p>Access to businesses and customer parking will be maintained throughout construction.</p>
<b>Noise</b>	<p>There may be a temporary increase in noise from construction activity.</p>	<p>Construction noise impacts are considered temporary and will be minimized through contractors adhering to UDOT Standard Specifications for noise and vibration control (UDOT Standard Specification 01355 – Environmental Protection, subsection 1.8 Noise and Vibration Control). The Contractor will adhere to local jurisdiction laws and regulations regarding construction noise.</p>
<b>Air Quality</b>	<p>Construction activities, especially associated with excavation, will temporarily impact air quality by increased amounts of larger dust particles. Odors may be present during paving.</p>	<p>The Contractor will be required to follow UDOT's Standard Specification 01572 - Dust Control and Watering.</p>
<b>Farmlands</b>	<p>Construction activities could disrupt farming operations. These impacts would be temporary.</p>	<p>The Contractor will be required to maintain access to farmlands during construction. Also, see Utilities and Canals for irrigation issues.</p>



**TABLE ES-2, SUMMARY OF POTENTIAL CONSTRUCTION IMPACTS AND MITIGATION**

<b>Impacts</b>	<b>Proposed Action</b>	<b>Mitigation</b>
<b>Water Quality</b>	There is the potential to impact surface water quality from sediment and erosion during construction. There is a potential to impact groundwater if there are spills or leakage of contaminants materials during construction.	<p>Disturbed areas will be reseeded and planted with native vegetation as soon as feasible.</p> <p>Best Management Practices (BMPs ) will be used to minimize storm water runoff effects.</p> <p>Irrigation features will be maintained during construction so that farming dependent upon them will continue to be economically viable.</p> <p>A Storm Water Pollution Prevention Plan will be prepared during the design phase of this project. This plan is designed to minimize the storm water impacts to receiving waters during construction.</p>
<b>Utilities and Canals</b>	Construction will require the relocation and/or re-construction of several utilities.	<p>Advance notice will be given of all anticipated disruptions to utility service. UDOT will coordinate with the various utility companies during the design phase of this project. The Contractor will be required to coordinate with the affected land owners and irrigation companies prior to any disruptions.</p> <p>Water carried by the irrigation facilities will continue to reach farmers during construction. BMPs will be used to maintain the quality of the water within the irrigation facilities during construction.</p>
<b>Geology, Soils, and Topography</b>	The construction activities will disturb soils along the project corridor. These will be temporary impacts.	The Contractor will be required to revegetate disturbed areas as soon as feasible to minimize soil erosion.
<b>Hazardous Materials</b>	Construction activities could result in accidental spill of hazardous materials, particularly petroleum products.	The contractor will be required to contain all areas used for refueling. Upon discovery of hazardous materials during construction, the contractor will be required to notify UDOT immediately and cease all construction related activities in the area. The Contractor will be required to follow UDOT Standard Specification 01355 – Environmental Protection.



**TABLE ES-2, SUMMARY OF POTENTIAL CONSTRUCTION IMPACTS AND MITIGATION**

<b>Impacts</b>	<b>Proposed Action</b>	<b>Mitigation</b>
<b>Invasive Species</b>	The potential exists for invasive plant species to be introduced and propagated in the Proposed Action roadway and adjacent right-of-way.	The Contractor will be required to follow UDOT's Special Provision 02924S – Invasive Weed Control, during construction activities. The BMPs listed in this specification include washing equipment (i.e. earth movers, graders, trucks) prior to their use and applying an herbicide along the project corridor prior to construction to control the spreading of these noxious species. Also, disturbed areas will be revegetated with native, non-invasive species as soon as feasible.
<b>Public Information and Coordination</b>	N/A	A public information plan will be developed and implemented as part of the construction phase of this project. The plan may include regular updates to the local jurisdictions general public, notification to businesses of construction schedules and anticipated inconveniences, coordination with emergency response personnel.
<b>Construction Work Hours</b>		Construction work hours will be coordinated with the local jurisdiction and UDOT.



## **PUBLIC INVOLVEMENT**

NEPA requires effective and ongoing public participation during the development of an environmental document. Stakeholders included representatives of the local governments (Saratoga Springs, Bluffdale, Eagle Mountain, and Lehi), the Utah National Guard representing Camp Williams, the LDS Church, and the general public. Stakeholders were invited to participate in the process.

The scoping period for the SR-68 Project began with the scoping public meetings that were held August 9 and 10, 2006, in Saratoga Springs and in Bluffdale, respectively. Presentations were given prior to the public meetings to Camp Williams' officials and the city councils of Lehi, Saratoga Springs, Bluffdale, and Eagle Mountain. These meetings occurred August 9, July 11, 18, and 25, and August 1, 2006, respectively. Other more informal meetings were convened with resource agency staff and LDS Church Property Management staff. The Salt Lake Bicycle Club requested a presentation that was given September 7, 2006.

Comments were addressed and responses provided as appropriate. Comments received during the NEPA process were used to identify issues for scoping and were considered in the development of the Proposed Action. Comments from the public hearing scheduled for April 2007 will be added to the final document.

## **CONCLUSION**

This EA concludes that the project will not cause economic, social, or environmental impacts that cannot be mitigated.





## CHAPTER 1 - PURPOSE AND NEED

The Federal Highway Administration (FHWA) and the Utah Department of Transportation (UDOT) are proposing improvements to SR-68 (also known as Redwood Road/Camp Williams Road) between Saratoga Springs in Utah County and Bangerter Highway in Salt Lake County. Figure 1-1, SR-68 Project Vicinity Map, illustrates the location of the project. Figure 1-2, Project Corridor Map, shows the location within Utah and Salt Lake Counties. This chapter describes the Purpose and Need for the project.

SR-68 is designated as a Minor Arterial in Utah County by the Mountainland Association of Governments (MAG) and a Principal Arterial in Salt Lake County by the Wasatch Front Regional Council (WFRC). Arterials are roadways that carry a mix of local and through traffic, linking collector roads and local streets with highways and freeways. One of the core functions of SR-68 is to provide a balance in serving through trips between Utah and Salt Lake Counties and providing local access.

The SR-68 improvements are needed to accomplish the following objectives:

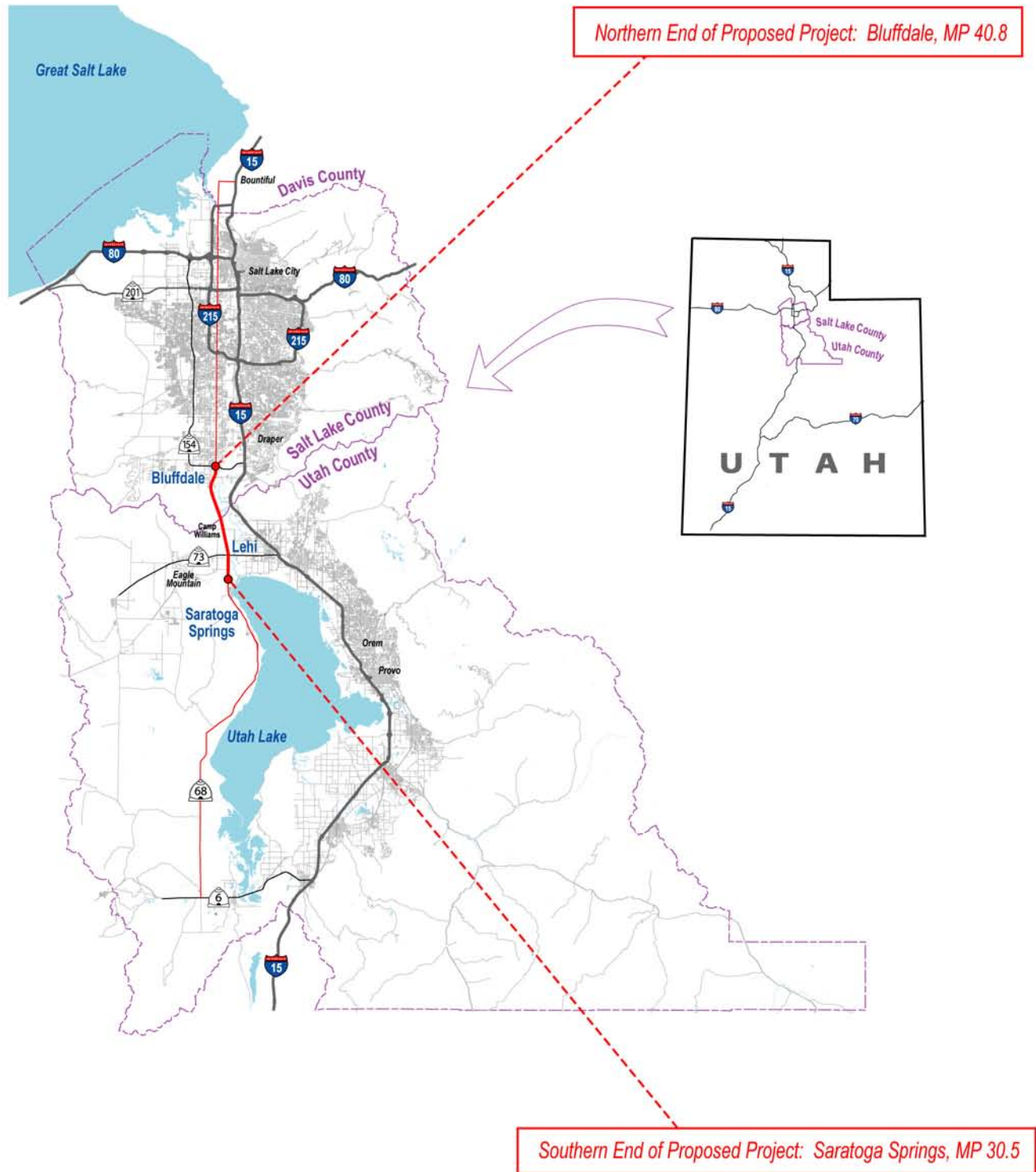
- Improve connectivity between existing and proposed transportation arterials and highways;
- Provide a transportation infrastructure that meets current roadway standards and will be an asset to the community;
- Provide a transportation facility that operates at an acceptable level of service (LOS) and meets UDOT's goal of LOS D;
- Maximize long-term roadway capacity by managing access concurrent with UDOT policies and existing and planned land uses; and
- Improve emergency response time and availability of emergency response teams.

### 1.1 PROPOSED ACTION

The Proposed Action consists of widening SR-68 from two/three lanes to five lanes with two through lanes in each direction and a center turn lane. It extends 10.3 miles beginning just south of the future Pony Express Parkway intersection with SR-68 mile post (MP) 30.5 in Saratoga Springs and Bangerter Highway in Bluffdale (MP 40.8).

The roadway grades and curves will be designed and constructed to meet current American Association of State Highway and Transportation Officials (AASHTO) design standards. In addition, signage will be improved, and cross-street and driveway accesses will be modified and/or controlled to improve the long-term use of the roadway. Three wildlife crossings will be constructed as part of the Proposed Action.

Appendix A includes forty 11 X 17 inch sheets with the Proposed Action design superimposed onto aerial photographs. These sheets show a detailed design of the SR-68 Proposed Action. Principle features of the Proposed Action are described below and are explained further in Chapter 2.

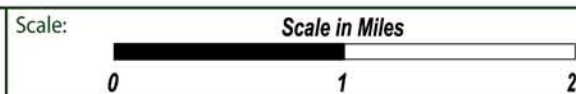
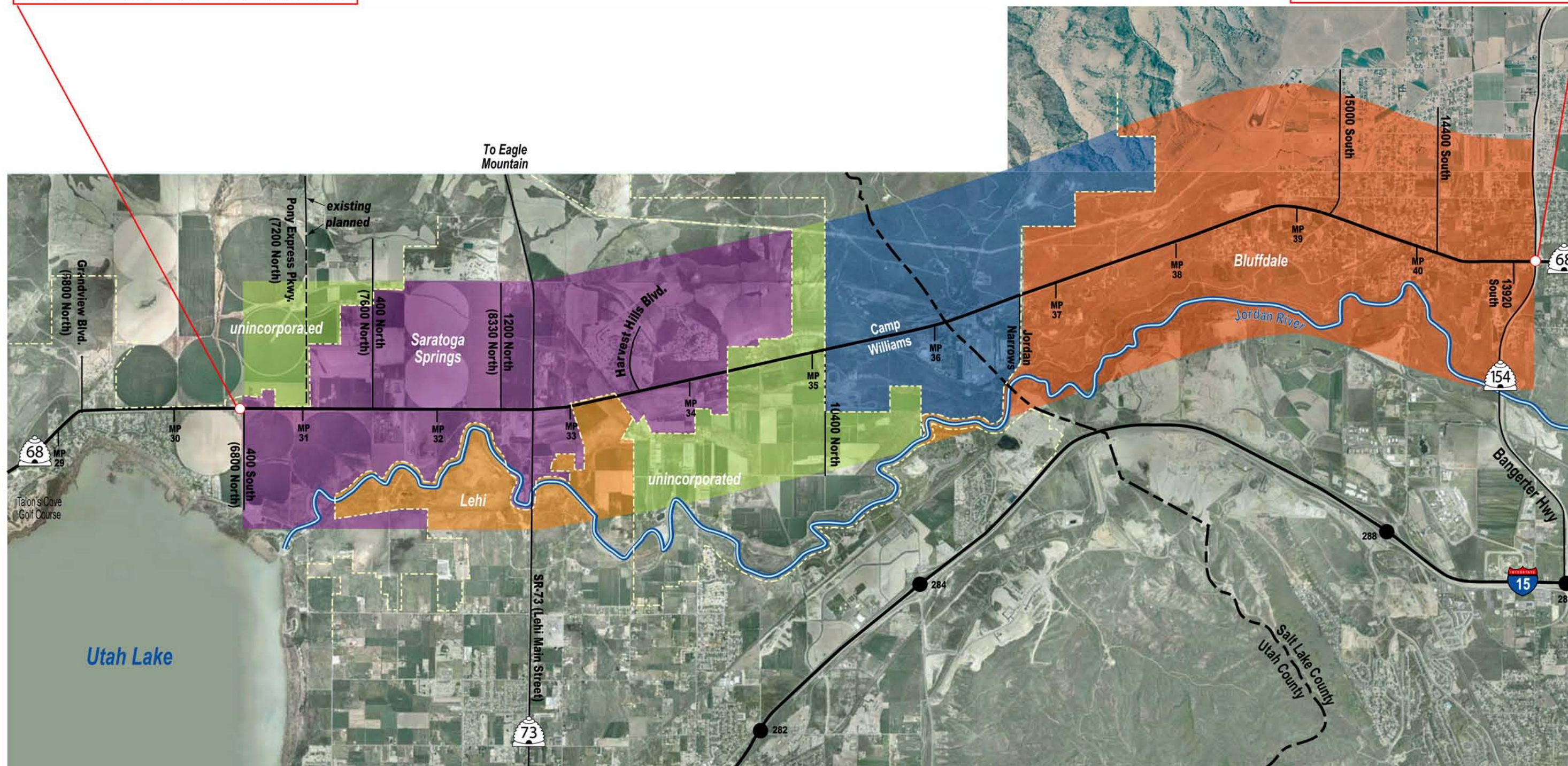






Southern End of Proposed Project: Saratoga Springs, MP 30.5

Northern End of Proposed Project: Bluffdale, MP 40.8



Planned Roadways  
Municipal Boundaries

Legend:

● I-15 Interchanges

Figure 1-2  
Project Corridor Map





### **1.1.1 Roadway Cross Section**

The roadway cross section includes two general purpose lanes in each direction and a center lane to accommodate left turn movements. Each side of the roadway will have shoulders that include a five foot bike lane, curb and gutter and a park strip with sidewalk (along the majority of the project corridor). Sidewalks will not be constructed as part of the project in Saratoga Springs, where developers are required to construct them. Several intersection improvements will add right turn lanes and/or additional left turn lanes. Median barriers will be included at the SR-68 intersections with SR-73 and 14400 South.

### **1.1.2 Design Considerations**

In the urban area of Bluffdale, the roadway grade and curves will be designed and constructed to meet current AASHTO design standards for a 50 mph design speed. Outside of Bluffdale the roadway will be designed for 60 mph design speed. In addition, signage will be improved and cross street and driveway accesses will be modified and/or controlled to improve the long-term use of the roadway. Please see Appendix A for detailed design of this SR-68 Proposed Action.

### **1.1.3 Wildlife Crossings**

Wildlife crossings will be constructed at three locations along the project corridor. The crossings will include fencing to direct wildlife to these openings. The location of each crossing is shown in Figure 2-3, Proposed Action (see Chapter 2), and in more detail in Figures A-19, A-22, and A-29 (see Appendix A, Proposed Action Plans). Figure 2-4, Wildlife Crossing Profiles (see Chapter 2), illustrates the three wildlife crossing cross sections. For each of the wildlife crossings, fencing will be placed adjacent to the ends of each structure and run along the potential right-of-way line on both sides of SR-68.

### **1.1.4 Intersection Layout**

Figure 2-5, Proposed Action with Intersection Improvements (see Chapter 2), shows the major intersections within the project limits. The cross street configurations illustrated have been assumed but may vary at sometime in the future. Signals will be installed in the future as needed in accordance with UDOT's policy. The Proposed Action will not prohibit the future installation of signals.

## **1.2 PURPOSE OF PROJECT**

The purpose of the Proposed Action is to:

- Increase SR-68 capacity to accommodate existing and 2030 future traffic and reduce congestion along the project corridor; and
- Increase transportation safety for all users by improving SR-68 in accordance with current design standards, adding bicycle lanes and shoulders, improving intersections; and improving wildlife corridor connectivity.

## **1.3 NEED FOR PROJECT**

Adding capacity on SR-68 will improve safety and mobility, and accommodate projected growth in the project corridor. The capacity and safety needs for this project are described in more detail below.









### 1.3.1 Capacity, Transportation Demand and Safety

Rapid population growth is expected over the next 25 years in the study area. This is consistent with other communities located along the Wasatch Front. As population increases, traffic volumes are also expected to increase. Traffic volumes on Redwood Road in the study area are projected to more than double over this period.

#### 1.3.1.1 Existing Capacity of SR-68 and Projected Transportation Demand

Level of service (LOS) is a concept used by traffic engineers to measure how well a transportation facility operates. LOS ranges from A to F; UDOT's goal is to achieve LOS D which is considered acceptable in urbanized areas. A description of the different levels of service is included in the exhibit below.

<i>Definitions of Level Of Service (LOS)</i>		
LOS	Roadway Segment Operating Characteristics	Visual Example
<b>A</b>	Represents free traffic flow, very few cars on roadway.  In the range of free traffic flow, with some other motorists in the traffic stream begins to be noticeable. Some time spent following slower vehicles but appropriate gaps in traffic allows for passing with little delay.	
<b>B</b>	In the beginning range of traffic flow in which the operation of individual motorists becomes significantly affected by other motorists in the traffic stream. Time spent following slower vehicles is longer and occurs more frequently, but appropriate gaps in traffic allows for passing with moderate delay.	
<b>C</b>	Represents high-density traffic flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort and convenience. Time spent following slower vehicles is noticeably longer and occurs more frequently, and there are fewer gaps in traffic to allow for passing, increasing overall delay.	
<b>D</b>	Represents operating conditions at or above the capacity level. All speeds are reduced to a low and relatively uniform speed. Time spent following slower vehicles exceeds time not behind slower vehicles, and there are few if any gaps in traffic to allow for passing.	
<b>E</b>	Used to define intermittent stopping and moving at a very reduced speed. This condition exists wherever the amount of traffic exceeds the capacity of that point. Time spent following slower vehicles approaches 100 percent of the time traveling on a roadway segment, and there are likely no gaps in traffic to allow for passing.	
<b>F</b>		

Source: Transportation Research Board, *Highway Capacity Manual* / (HCM) 2000, Pg. 10-5.

The criteria used by transportation planners to determine level of service varies by the type of roadway (e.g. arterials, freeways) and is found in the *Highway Capacity Manual* (HCM), 2000 published by the Transportation Research Board. Using the HCM Arterials planning methodology, Table 1-1 was developed for SR-68 and shows the connection between level of service, speed and average daily traffic volumes for a two lane roadway.



TABLE 1-1, SR-68 EXISTING LOS AS RELATED TO SPEED AND DAILY TRAFFIC

Level of Service	Speed (mph)	Average Daily Traffic vehicles per day (vpd)
A	>42	<7,500
B	34 – 42	7,500 – 17,000
C	27 – 34	17,000 – 18,000
D	21 – 27	18,000 – 19,500
E	16 – 21	19,500 – 21,500
F	<16	>21,500

Assumptions: 50 mph free flow speed, Class I arterial, no median, 10% turns from exclusive lanes, 9.5% of daily traffic in the peak hour, 60/40 directional split, 0.92 peak hour factor, one traffic signal per mile, 90 second cycle length, 0.55 effective green ratio, and intersection arrival type 3.

To determine what the roadway capacity will need to be in the future, existing conditions are compared to anticipated 2030 traffic demand. To better understand the existing conditions on SR-68, traffic counts were collected in August 2006 to estimate average 2006 weekday traffic volumes. The SR-68 corridor was divided into four segments and volumes were determined for each segment. The Wasatch Front Regional Council/Mountainland Association of Governments travel demand forecasting model was used to develop 2030 daily traffic volumes for the SR-68 corridor by segment, assuming that no improvements were made to the corridor.

Table 1-2 shows the results of this analysis. 14400 South to Bangerter Highway is the only segment currently over capacity and operating at LOS E. It also illustrates that in 2030 all four of the roadway segments are anticipated to operate at LOS F, if no improvements are made to SR-68.

TABLE 1-2, EXISTING AND 2030 NO BUILD SR-68 ROADWAY LEVELS OF SERVICE

Roadway Segment	Existing Conditions		2030 No Build Conditions	
	Weekday Average Daily Traffic (vpd)	Level of Service	Weekday Average Daily Traffic (vpd)	Level of Service
Pony Express Pky to SR-73	8,500	B	27,000	F
SR-73 to County Line	14,500	B	29,500	F
County Line to 14400 South	15,500	B	30,500	F
14400 South to Bangerter Hwy	20,500	E	28,500	F

Source: PB traffic counts, August 2006, Interplan WFRC/MAG model runs September 2006, and PB traffic analysis February 2007.

### 1.3.1.2 Level of Service at Intersections

In addition to the level of service for the corridor segments described in the previous section, further analysis of traffic operations were prepared by analyzing major intersections along the corridor. The level of service for intersections is determined by comparing the amount of delay experienced by vehicles crossing the intersection. At traffic signals the delay is measured for all approaches to the signal; whereas at two-way stop controlled intersections





delay is measured for the approach with the highest delay. Table 1-3 shows the delay associated with each level of service for both signalized and unsignalized intersections.

TABLE 1-3, INTERSECTION LOS AS RELATED TO DELAY

Level of Service	Delay (seconds/vehicle)	
	Signalized	Unsignalized
A	<10	<10
B	10 - 20	10 - 15
C	20 - 35	15 - 25
D	35 - 55	25 - 35
E	55 - 80	35 - 50
F	>80	>50

Source: Highway Capacity Manual (2000)

Intersection analysis was also completed to compare existing conditions to 2030 No Build conditions. Existing PM peak hour intersection levels of service were developed for key intersections along the corridor using the August 2006 traffic counts. Using the traffic count data and travel demand model runs, 2030 No Build intersection PM peak hour volumes were developed and analyzed. Table 1-4 shows the delay and corresponding level of service at key intersections along the corridor for existing and 2030 no build conditions.

TABLE 1-4, SR-68 EXISTING AND 2030 NO BUILD PM PEAK HOUR INTERSECTION LOS

SR-68 Intersection	Existing		2030 No Build	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
400 North	17	C	>180	F
SR-73 *	30	C	110	F
Harvest Hills Blvd	23	C	45	E
Camp Williams	16	C	54	F
15000 South	21	C	>300	F
14400 South *	16	B	100	F
13920 South	16	C	>300	F
Bangerter Highway *	35	D	169	F

\* Signalized Intersection

Source: PB traffic counts, Interplan model runs and PB traffic analysis February 2007.

In 2030, if no improvements are made, seven of the eight intersections are expected to function at LOS F; only the intersection of SR-68 and Harvest Hills Boulevard functioning at LOS E. Intersection improvements are needed to reduce congestion and delay at these intersections and on the mainline.



### 1.3.2 Safety

UDOT has prepared an Operational Safety Report (OSR) for this segment of SR-68 dated August 31, 2006. An OSR evaluates the safety characteristics of a roadway (i.e. lane width, shoulders) and provides recommendations for increasing vehicle safety along the corridor. Figure 1-3, Geometric and Operational Roadway Deficiencies, shows the areas on SR-68 within the project limits that do not meet current design standards. Twenty-eight deficiencies were identified that need to be corrected to improve safety. Several of these are listed below:

- Improve and add shoulders;
- Improve substandard horizontal and vertical curves;
- Add signage as appropriate;
- Construct right and left turn lanes at 14400 South;
- Improve access to Camp Williams and improve site distance at access points;
- Improve guardrail sections throughout the corridor; and
- Move fixed objects (i.e. utility poles, culverts) outside of the clear zone.

#### 1.3.2.1 Existing Crash Rate

The number of crashes, the type of crashes (angle, sideswipe, rear-end, wildlife etc.), the severity, and the crash rate were analyzed between 2001 and 2005 to determine the existing safety problems. During this timeframe the crashes involved 457 vehicles with three fatalities (see Figure 1-4, Total Vehicular Crashes, Years 2001-2005).

Crash rate and severity is the standard measure that transportation engineers use to analyze safety. The crash rate is the number of crashes per million vehicle miles of travel. The severity of each crash is expressed as a value ranging from one to five; one represents property damage only and five represents a fatality. The average crash rate for the project corridor is 2.6 crashes per million vehicle miles of travel with an average severity index of 1.5 (between property damage and possible injury to motorist).

Approximately half of the crashes involved multiple vehicles with the other half being single vehicle crashes. The majority of the multiple vehicle crashes occurred at the intersections of SR-68 at SR-73, 14400 South, and Bangerter Highway. Overall the majority of the multiple vehicle crashes were rear-end collisions. Crashes involving a left turning vehicle and a straight vehicle were second.

A comparison was made of the existing crash rates on the project corridor with expected rates on similar roadways. Table 1-5, on the following page, shows the comparisons. The bold values are locations where the existing value exceeds the expected value. The values were calculated based on a weighted average using the segment length.



TABLE 1-5, SR-68 EXISTING AND EXPECTED CRASH RATE ON SIMILAR ROADS

Segments	Number of Crashes	Crash Rate		Severity Index	
		Existing	Expected	Existing	Expected
Pony Express to SR-73	77	2.2	1.5	1.7	1.6
SR-73 to County Line	117	2.2	2.0	1.7	1.7
County Line to 14400 South	176	2.4	3.9	1.4	1.6
14400 South to Bangerter Hwy.	87	7.0	3.9	1.4	1.6
Total	457	2.6	2.8	1.5	1.7

Source: UDOT Traffic and Safety and PB crash analysis January 2007.

The overall crash rate and severity index for the corridor is less than the expected value for a similar corridor. However, three of the four segments have a crash rate that exceeds the expected value and one segment has a crash severity that is above the expected value.

Of the 457 total crashes in the project corridor, 29 percent involved wildlife, which represents nearly 60 percent of all single vehicle crashes. Collisions between vehicles and wildlife occurred primarily along a four-mile stretch between MP 35 and MP 39, through the Camp Williams area. Figure 1-5, Crashes with Animals, Years 2001-2005, shows the locations of these crashes. The remaining single vehicle crashes were generally the result of a vehicle running off the side of the road.

#### 1.3.2.2 Projected Crash Rate without Project

There is a greater potential for crashes in the future without the project. The number of vehicles using SR-68 will continue to increase resulting in an increase in crashes.

### 1.4 SUMMARY OF PROJECT NEED

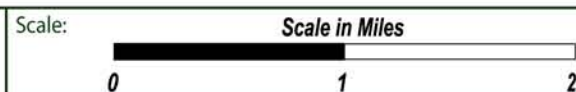
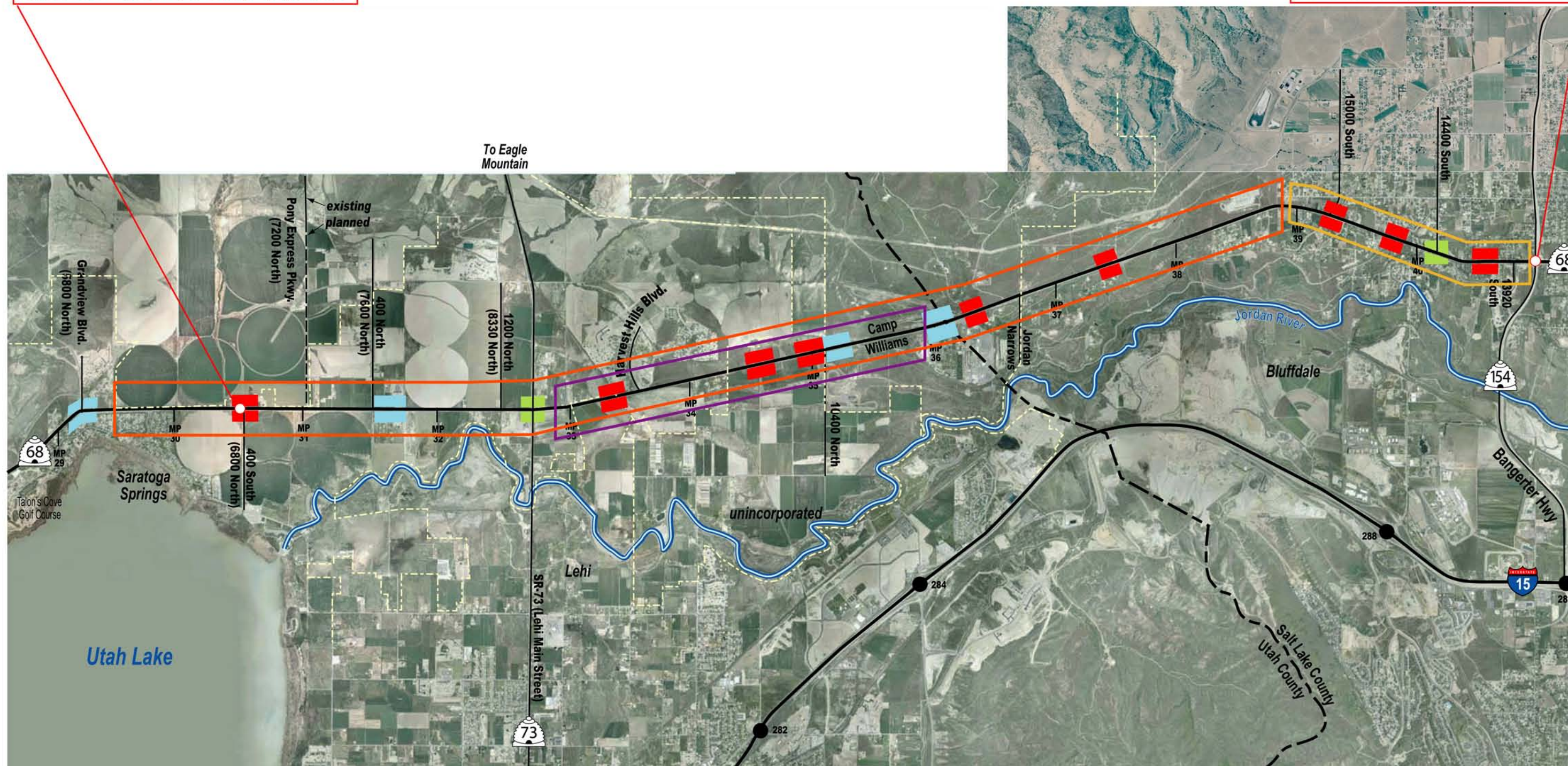
Based on the needs identified for the project corridor, safety and design deficiencies improvements to SR-68 will improve safety and mobility to accommodate projected growth in the project corridor. Alternatives developed and analyzed to meet the project need are described in Chapter 2.





Southern End of Proposed Project: Saratoga Springs, MP 30.5

Northern End of Proposed Project: Bluffdale, MP 40.8



Planned Roadways  
Municipal Boundaries

Legend:

Numerous Residential Access Points

Shoulder Width/Condition

Safety Problems at Intersection

Steep Embankment

Sight Distance

Canals; Poor Drainage on Road; Trees and Telephone Poles in Clear Zone

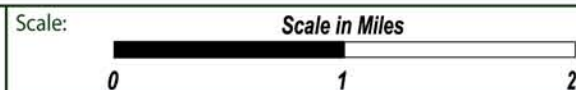
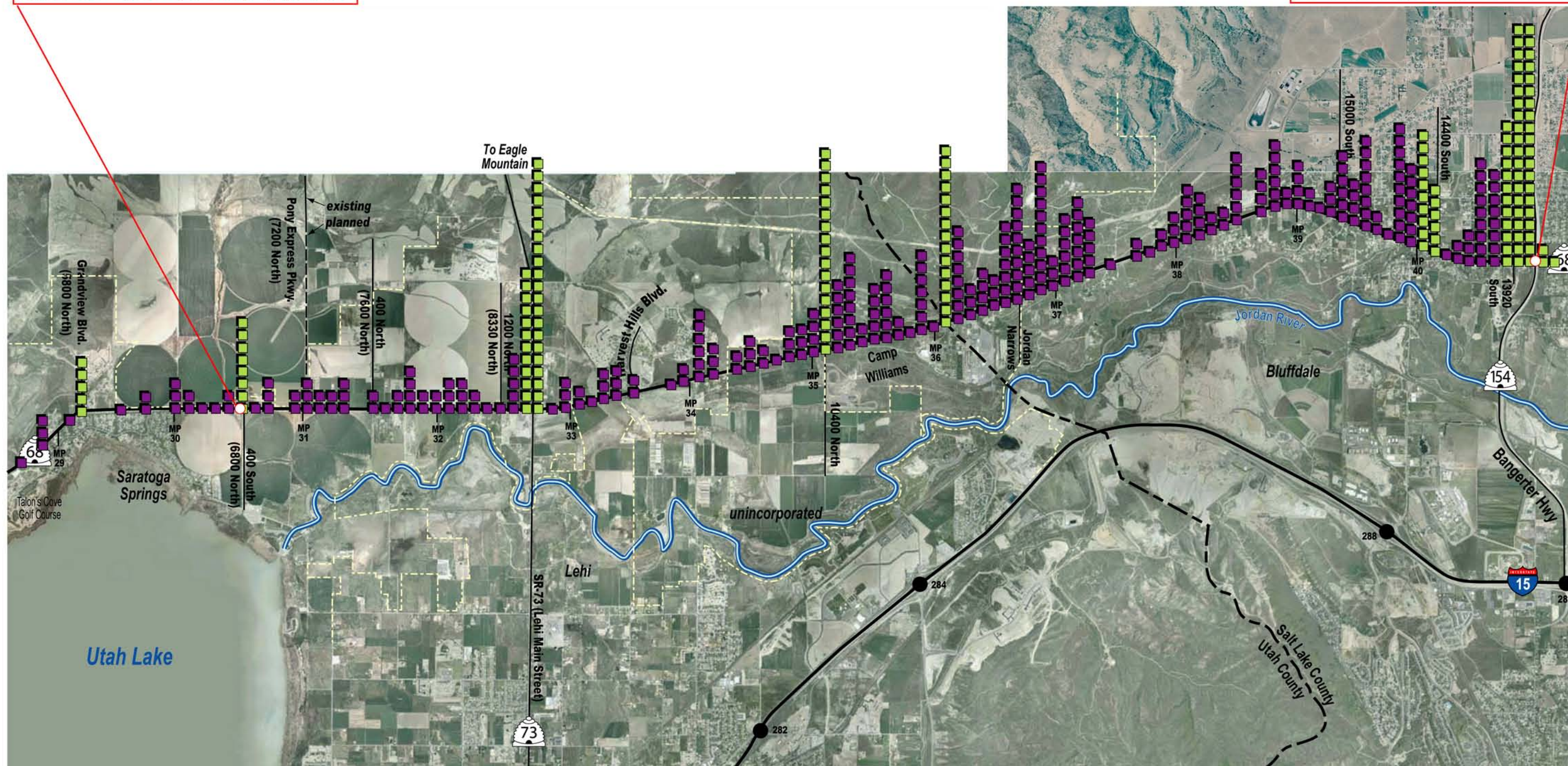
Figure 1-3  
Geometric and Operational Roadway Deficiencies





Southern End of Proposed Project: Saratoga Springs, MP 30.5

Northern End of Proposed Project: Bluffdale, MP 40.8



--- Planned Roadways  
--- Municipal Boundaries

Legend:  
■ Each purple square indicates 1 mainline crash, 2001-2005  
■ Each green square indicates 1 intersection crash, 2001-2005

NOTE: Animal crashes are included in the crashes shown on this map.  
For delineation of animal crashes, see Figure 1-5 Animal Crashes, 2001-2005

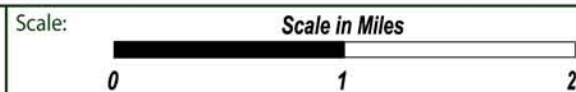
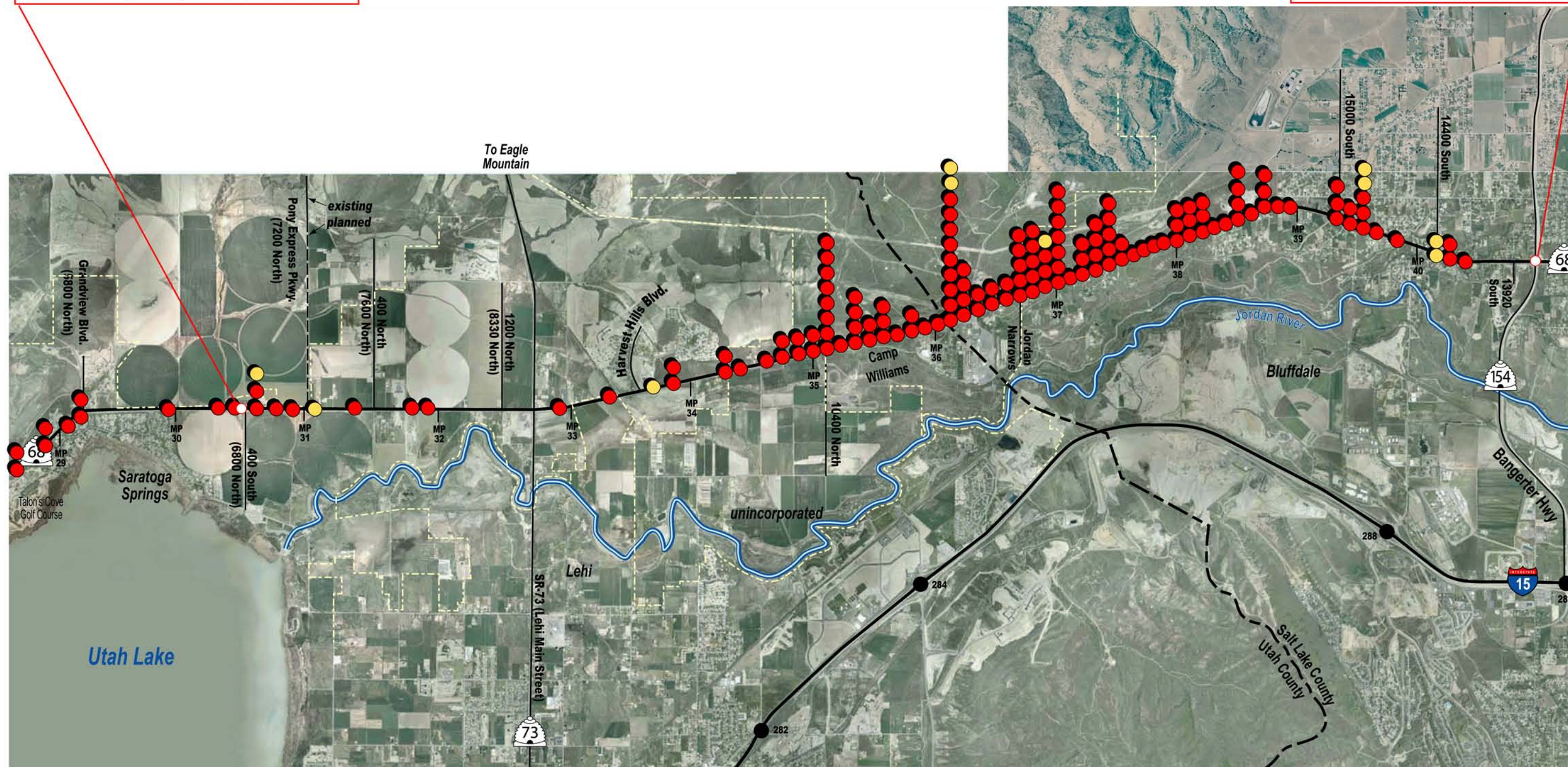
**Figure 1-4**  
Total Vehicular Crashes, Years 2001-2005





Southern End of Proposed Project: Saratoga Springs, MP 30.5

Northern End of Proposed Project: Bluffdale, MP 40.8



--- Planned Roadways  
--- Municipal Boundaries

Legend:

- Crashes with Wild Animals, Years 2001-2005
- Crashes with Domestic Animals, Years 2001-2005

**Figure 1-5**  
Crashes with Animals, Years 2001-2005





## CHAPTER 2 - ALTERNATIVES

In accordance with FHWA's Technical Advisory T6640.8A, a variety of alternatives were considered and evaluated to meet the project purpose and need. This chapter describes the Proposed Action (Build Alternative), No Build Alternative and other alternatives that were considered but eliminated from further consideration. The alternatives screening analysis results are also described.

### 2.1 PROPOSED ACTION

The Preferred Alternative (Build Alternative) is the Proposed Action. It consists of widening SR-68 from two/three lanes to five lanes with two through lanes in each direction and a center turn lane. It extends 10.3 miles beginning just south of the future Pony Express Parkway intersection with SR-68 (MP 30.5) in Saratoga Springs and Bangerter Highway in Bluffdale (MP 40.8). Principle features of the Proposed Action are described below:

#### 2.1.1 Roadway Cross Section

The roadway cross section includes two general purpose lanes in each direction and a center lane to accommodate left-turn movements. Each side of the roadway will have shoulders, curb and gutter and a park strip with sidewalk along the majority of the project. Sidewalks will not be constructed as part of the project in Saratoga Springs, where developers are required to construct them. Several intersection improvements will add right-turn lanes and/or additional left-turn lanes. The Typical Cross Section of the Proposed Action with and without sidewalks is illustrated in Figure 2-1, Proposed Project Cross-Section (with sidewalk) and Figure 2-2, Proposed Project Cross-Section (without sidewalk). Figure 2-3 shows the Proposed Action with the location of sidewalks and other amenities.

#### 2.1.2 Design Considerations

In the urban area of Bluffdale, the roadway grade and curves will be designed and constructed to meet current AASHTO design standards for a 50 mph design speed. Outside of Bluffdale the roadway will be designed for 60 mph design speed. In addition, signage will be improved and cross-street and driveway accesses will be modified and/or controlled to improve the long-term use of the roadway.

Appendix A includes forty 11 X 17 sheets with Proposed Action design superimposed onto aerial photographs. Please see Appendix A for detailed design of the SR-68 Proposed Action.

#### 2.1.3 Wildlife Crossings

Wildlife crossings will be constructed at three locations along the project corridor. The crossings will include fencing to direct wildlife to these openings. The location of each crossing is shown on Figure 2-3, Proposed Action, and in more detail in Figures A-19, A-22, and A-29. Figure 2-4, Wildlife Crossing Profiles, illustrates the three wildlife crossing cross sections. For each of the wildlife crossings, fencing will be placed adjacent to the ends of each structure and run along the potential right-of-way line on both sides of SR-68.

##### 2.1.3.1 Wildlife Crossing #1

The wildlife crossing near Camp Williams' south access road will combine the Provo Reservoir Canal with a wildlife trail (Figure A-19) under crossing of SR-68. The Provo Reservoir Canal will be realigned to carry the water under SR-68 and tie in to the existing



canal east of the roadway. The wildlife trail will cross under SR-68 along the southern bank of the new channel. The crossing will require a bridge structure with 2:1 side slopes down to the trail and channel crossings.

#### **2.1.3.2 Wildlife Crossing #2**

The second wildlife crossing is located north of the Camp Williams' truck entrance (Figure A-22) and will accommodate wildlife, pedestrians, and vehicle traffic from Camp Williams. It will be constructed as a typical roadway under crossing with 2:1 side slopes. The cross section of the road will include width for a 28 foot road as well as a 12 foot pedestrian/wildlife trail. On the northeast corner of the crossing, the wildlife trail will be directed down into Beef Hollow with a retaining wall along the east side of SR-68 north of the crossing and another wall along the north side of the Camp Williams road.

#### **2.1.3.3 Wildlife Crossing #3**

A third wildlife/pedestrian crossing is proposed at the location where the Bonneville Shoreline Trail is anticipated to intersect with SR-68 (Figure A-29). This area is an ideal location for a wildlife crossing due to the natural topography of the area. It currently has an existing 36 inch reinforced concrete pipe that acts as a crossing for small animals. The new crossing will be a box culvert 20 feet wide by 15 feet tall.

#### **2.1.4 Intersection Layout**

Figure 2-5, Proposed Action with Intersection Improvements, shows the major intersections within the project limits. The cross street configurations illustrated have been assumed but may vary at sometime in the future.

### **2.2 INDEPENDENT UTILITY AND LOGICAL TERMINI**

Federal law (23 CFR 771.111(f)) requires that proposed transportation projects connect to logical termini, i.e. end points for the Proposed Action. Specifically, the law states that projects:

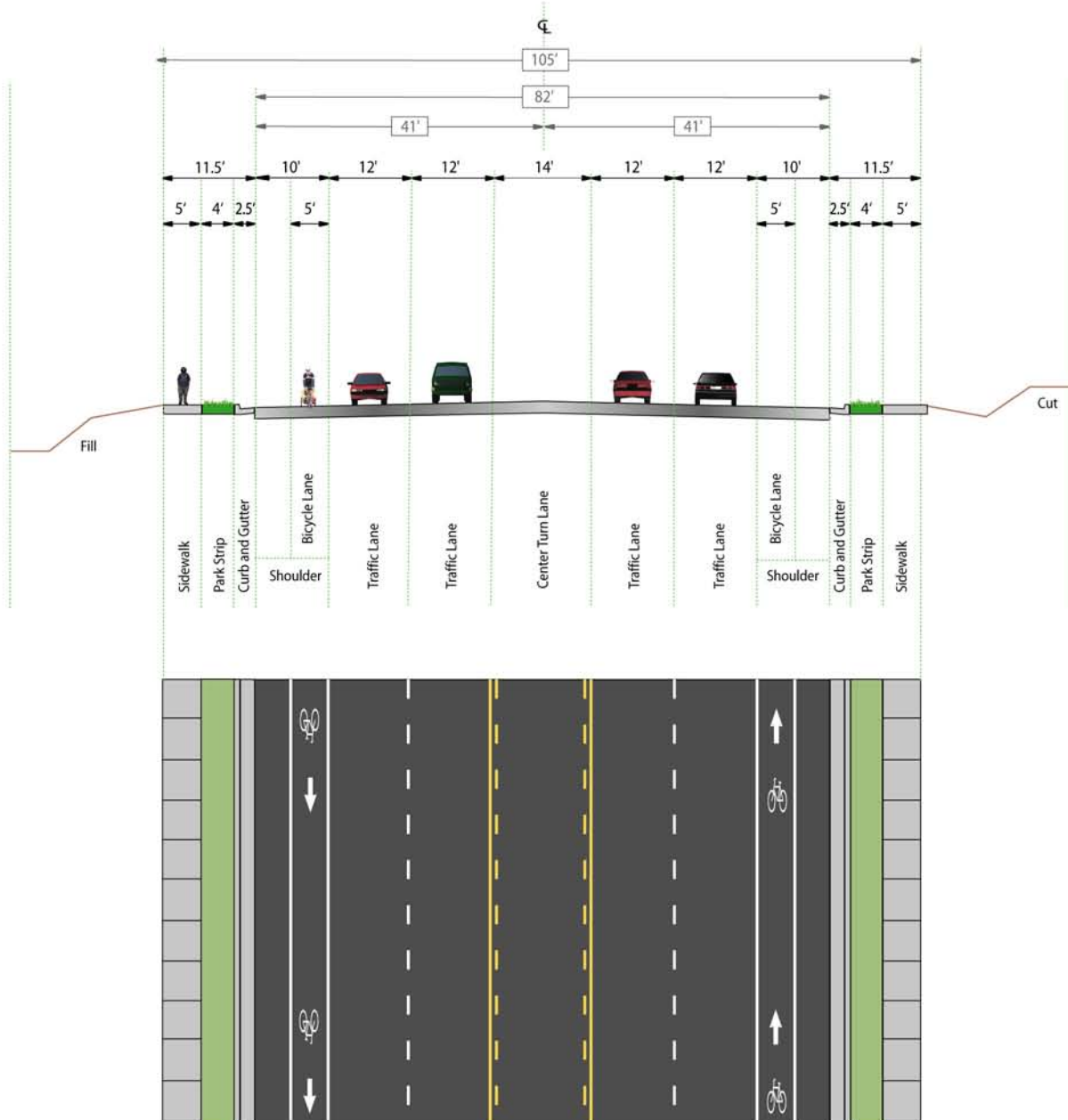
- Connect logical termini and be of sufficient length to address environmental matters on a broad scope;
- Have independent utility or independent significance, i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made; and
- Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

The logical termini analysis considered existing and planned roadways.



## Roadway Typical Section: 4-Lane Roadway with Center Turn Lane

*Facility includes shoulder, bicycle lane, curb, gutter, park strip and sidewalk*



Not to Scale



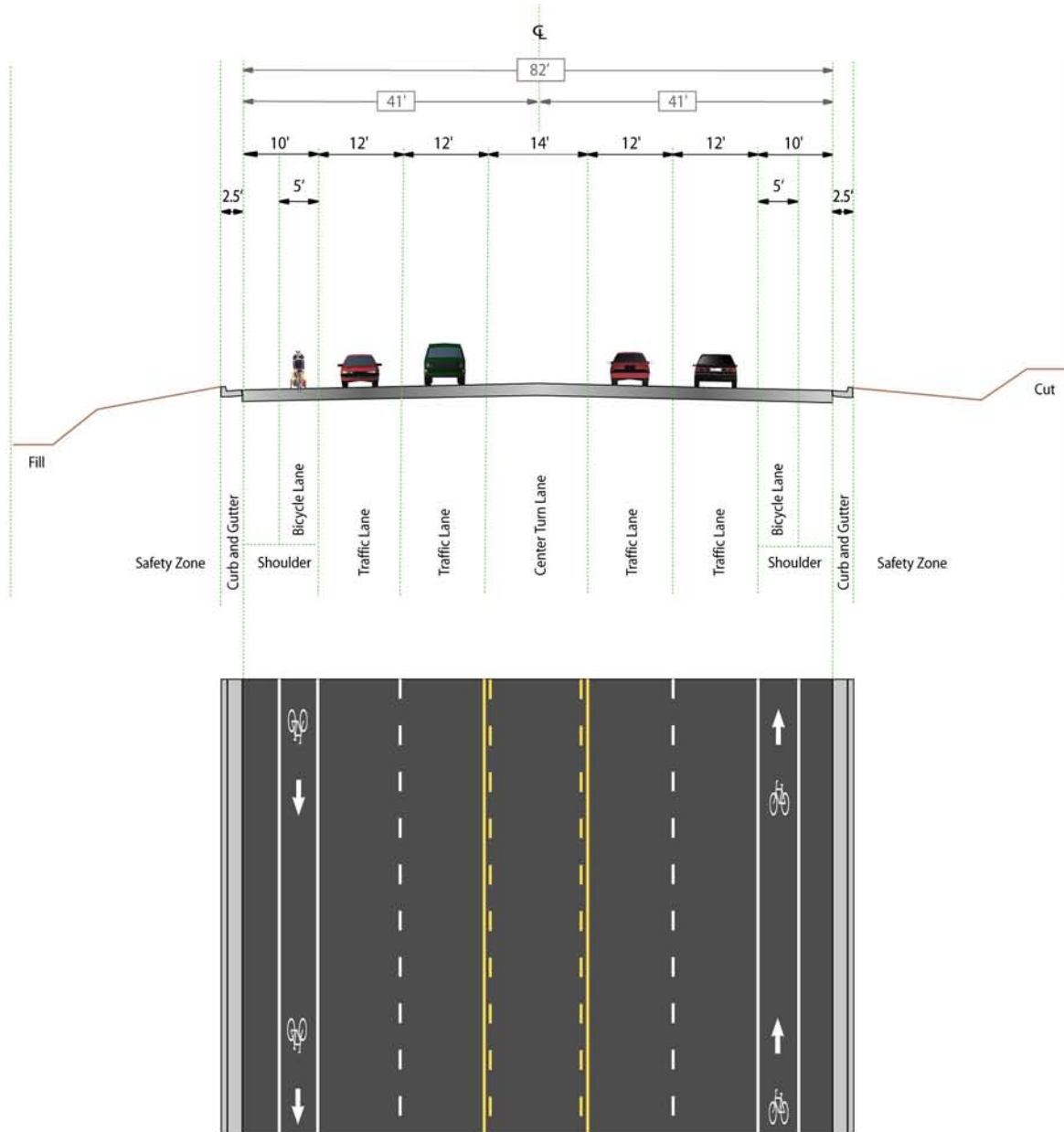
Legend:

**Figure 2-1**  
Proposed Project Cross-Section (with sidewalk)



## Roadway Typical Section: 4-Lane Roadway with Center Turn Lane

*Facility includes shoulder, bicycle lane, curb, gutter;  
does not include park strip or sidewalk*



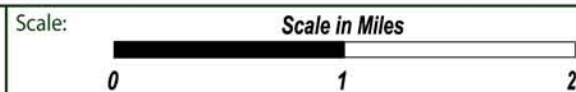
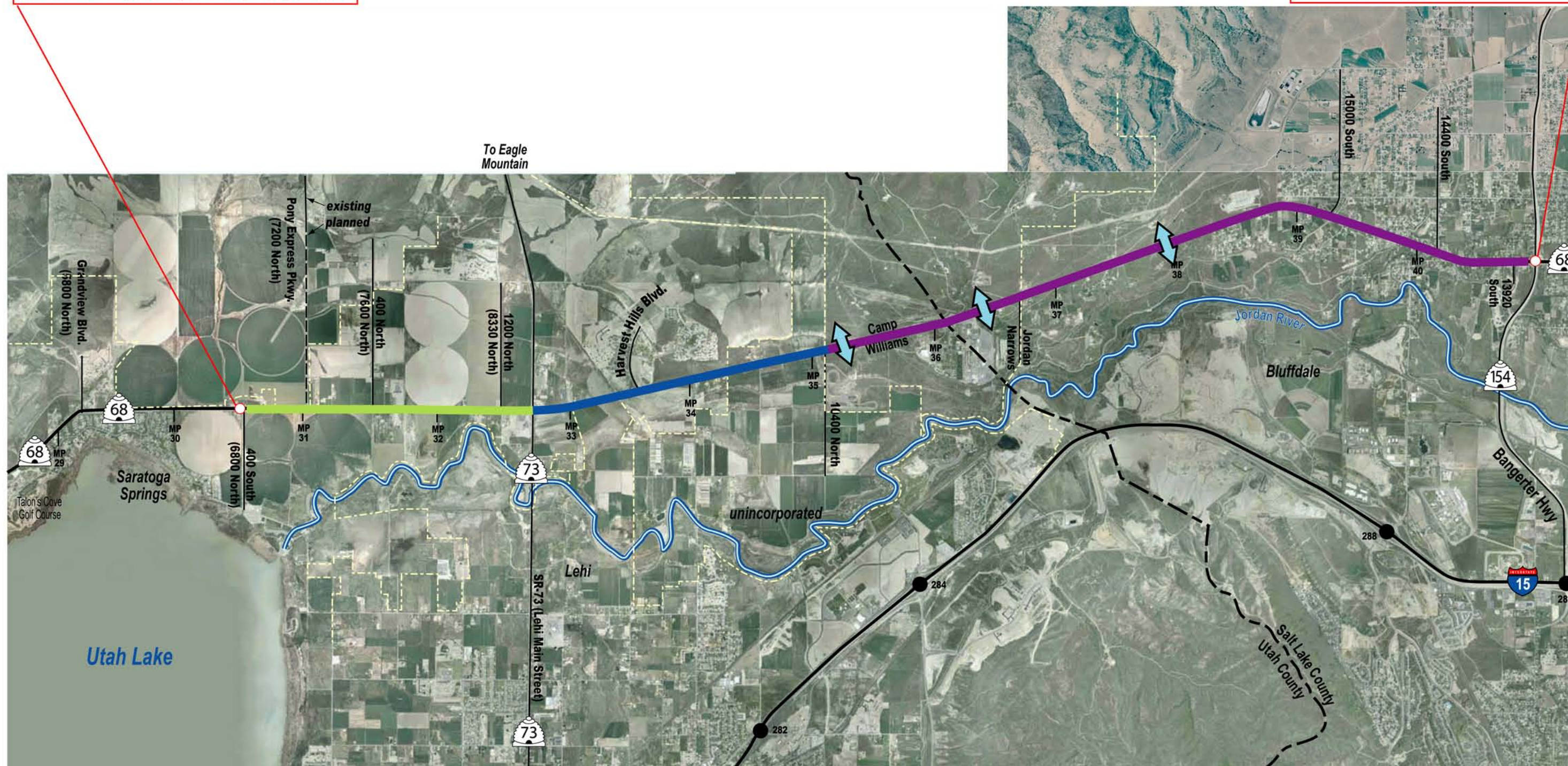
	Not to Scale		<b>Figure 2-2</b> Proposed Project Cross-Section (without Sidewalk)
	Legend:		





Southern End of Proposed Project: Saratoga Springs, MP 30.5

Northern End of Proposed Project: Bluffdale, MP 40.8



--- Planned Roadways  
--- Municipal Boundaries

Legend:

- Five-Lane Roadway: Four lanes with center turn lane, shoulders, bicycle lanes, curb, gutter, sidewalk and park strip.
- Five-Lane Roadway: Four lanes with center turn lane, shoulders, bicycle lanes, curb, gutter. Sidewalk to be constructed by developers.
- Five-Lane Roadway: Four lanes with center turn lane, shoulders, bicycle lanes, curb, gutter. Sidewalk and park strip to be determined.

Please See Figures 2-1 and 2-2 for Visual Depictions of Proposed Five-Lane Roadway Cross-Sections

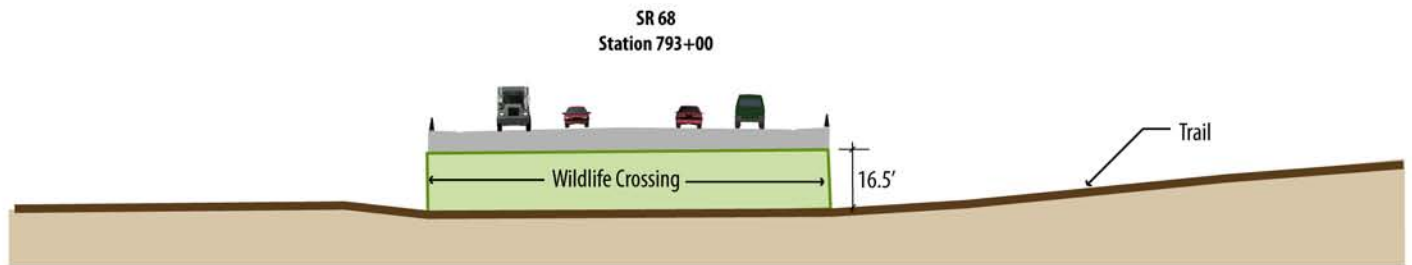
Approximate Location of Wildlife Underpass Crossing with Fencing

**Figure 2-3**  
Proposed Action





**Proposed Wildlife Crossing  
Crossing #1 (Station 750+00)**



**Camp Williams Undercrossing / Proposed Wildlife Crossing  
Crossing #2 (Station 793+00)**

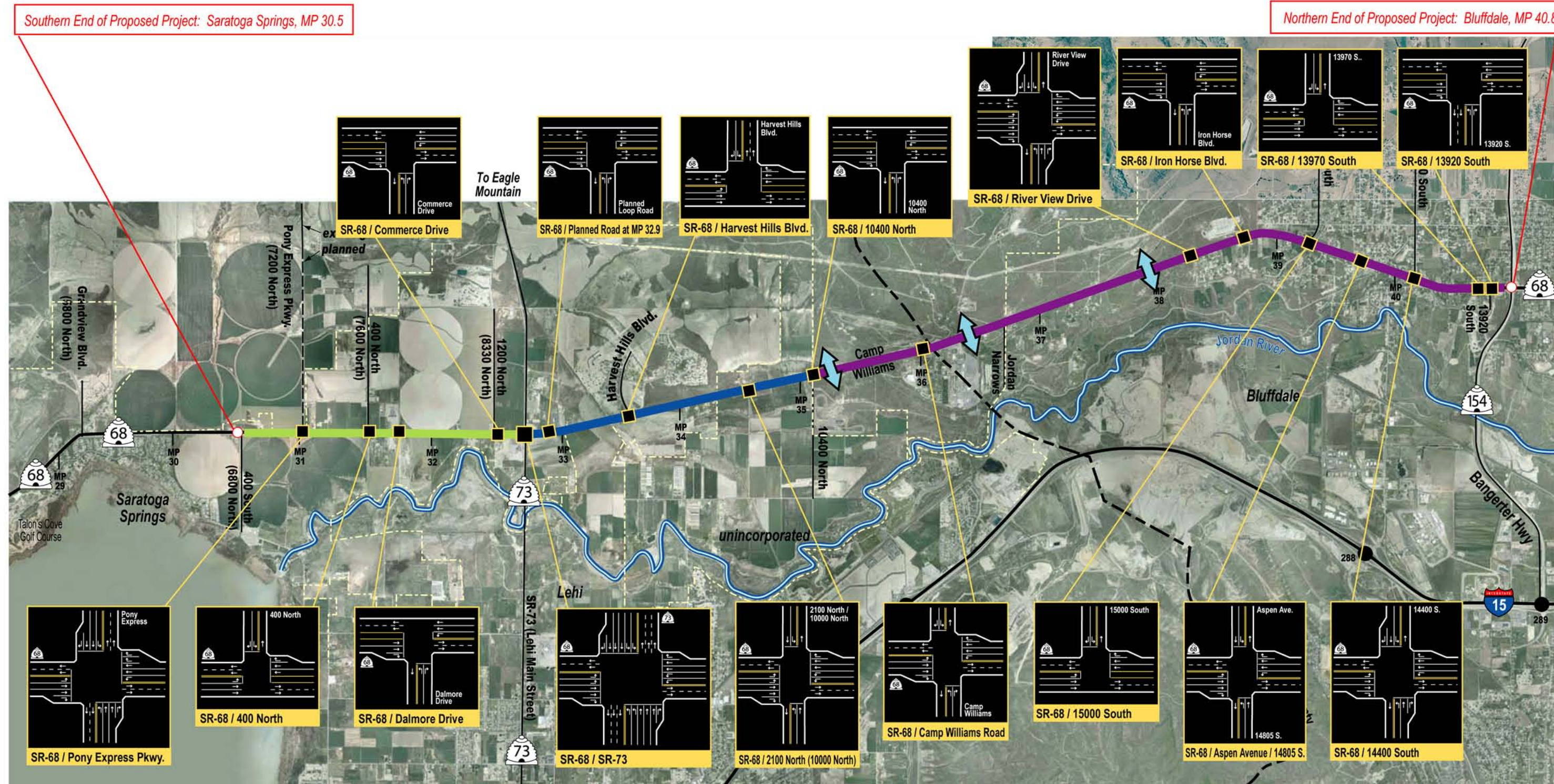


**Potential Bonneville Shoreline Trail / Proposed Wildlife Crossing  
Crossing #3 (Station 885+00)**



**Figure 2-4**  
Wildlife Crossing Profiles





Scale: Scale in Miles  
0 1 2



Planned Roadways  
Municipal Boundaries

Intersection Improvements

Figure 2-5  
Proposed Action with Intersection Improvements

Please See Figures 2-1 and 2-2 for Visual Depictions of Proposed Five-Lane Roadway Cross-Sections

Approximate Location of Wildlife Underpass Crossing with Fencing





### **2.2.1 Pony Express Parkway (southern terminus)**

The southern terminus of the Proposed Action is at MP 30.5 in Saratoga Springs; just south of the future Pony Express Parkway connection that extends westward into the rapidly growing city of Eagle Mountain. MP 30.5 is approximately 2,000 feet south of future Pony Express Parkway to allow for tapering and widening back to the existing two-lane roadway. Pony Express Parkway is planned to be a five lane facility; it currently connects to 400 North in Saratoga Springs west of SR-68. It will be relocated one-half mile south at some time in the future.

The traffic analysis conducted for this project was performed on SR-68 to Pelican Point, the southern city limits of Saratoga Springs. This analysis was conducted to determine the limits of the Proposed Action. The result of the analysis concluded that additional capacity was only needed on SR-68 to the future Pony Express Parkway in 2030 and SR-68 south of this point did not exceed UDOT's goal of Level of Service (LOS) D. The location of the southern terminus of the Proposed Action does not preclude future actions south of the future Pony Express Parkway to correct safety concerns, improve the facility, or add capacity.

### **2.2.2 Bangerter Highway (northern terminus)**

The northern terminus of the Proposed Action is at Bangerter Highway in Bluffdale and will tie into the existing intersection. Bangerter Highway is a limited access, six-lane facility that connects to I-15 in Draper at approximately 13800 South and continues to I-80 at the Salt Lake International Airport. Improvements on SR-68 north of Bangerter Highway have been approved through separate previous studies.

## **2.3 ALTERNATIVES CONSIDERED, SCREENING ANALYSIS, AND RESULTS**

The alternatives considered were analyzed through a screening process which evaluated their ability to meet the project purpose and need and objectives. For the mainline, evaluation of alternatives relied on a screening level analysis of projected roadway LOS based on daily traffic volumes.

Alternatives that would likely result in an unacceptable LOS E or F for the majority of the corridor were eliminated from further consideration. Alternatives that resulted in better than LOS D, but were not viewed as favorable, were eliminated if other alternatives with fewer environmental impacts resulted in acceptable levels of service.

SR-68 is an important element of the state's roadway system and a primary arterial for north/south travel in the state. It provides an important travel connection and major transportation corridor in northern Utah. Within the project study area, the roadway provides one of two primary connections between communities in northern Utah County and southern Salt Lake County. It has been designated as a principal arterial in Salt Lake County and a minor arterial in Utah County; it accommodates a variety of travel including commuters, freight movement, and recreational travel. The roadway also provides a connection to the primary intersections serving local communities. The ability for project alternatives to maintain the transportation circulation system was also considered.



### 2.3.1 Alternatives Considered

The alternatives considered include:

- No Build;
- Transportation System Management/Transportation Demand Management (TSM/TDM);
- Transit only;
- Combination of TSM/TDM, Transit and Three Lane Alternative;
- Seven Lane Alternative;
- Three Lane (Center Turn Lane) Alternative; and/or
- Five Lane Alternative.

#### 2.3.1.1 No Build Alternative

The No Build Alternative assumes that no improvements would be made to SR-68, within the project corridor. Regional modeling for the No Build Alternative assumed that all other projects in the MAG and WFRC Long Range Plan would be constructed. Figure 2-6, 2030 Long Range Plan and Other Related Projects, illustrates these projects. Table 2-1, No Build Alternative Assumptions, shows the other transportation facilities that would be improved or built and other conditions that are assumed as part of the alternatives analysis. The level of capacity of SR-68 as a two-lane highway is approximately 21,500 vehicles per day (vpd). The modeling results indicate that expected traffic volumes and congestion on SR-68 will steadily increase, resulting in an unacceptable LOS.



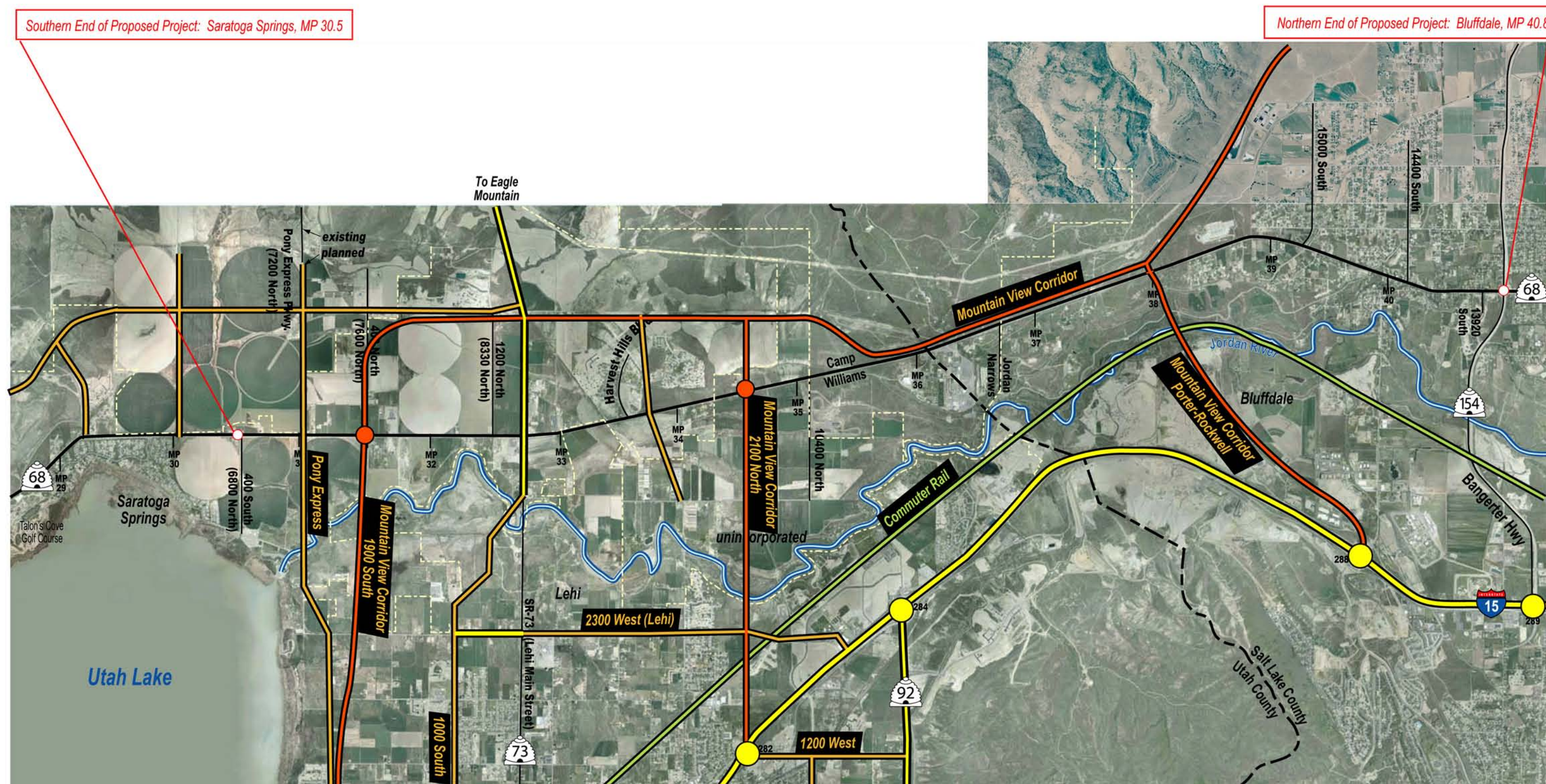






TABLE 2-1, NO BUILD ALTERNATIVE ASSUMPTIONS

Project	Project Limits		Assumptions
	From	To	
SR-68	10600 S.	Bangerter Hwy	Widen to 4 travel lanes
Bangerter Highway	10400 S.	I-15	6 travel lanes exist
I-15	Bangerter Hwy	University Parkway in Utah County	Widen to 12 travel lanes
Mountain View Corridor	I-80 in Salt Lake County	I-15 in Utah County	Freeway with tolling option Utah County Alternatives: -Southern Freeway Alternative (along 1900 South, Lehi) -2100 North Freeway Alternative -Arterials Alternative Porter Rockwell arterial 2100 North arterial 1900 South arterial
Commuter Rail	Salt Lake City	Provo	New construction
SR-73	SR-68	Eagle Mountain Boulevard	Widen to 6 travel lanes west of the Mountain View Corridor
1000 South (Lehi)	Lehi Main Street	I-15	New 4 travel lanes (arterial)
2100 North (Lehi)	Mountain View Corridor	I-15	New 6 travel lanes (arterial)
Porter Rockwell	Mountain View Corridor	I-15	New 6 travel lanes (arterial)
Foothill Drive	SR-73 near Pelican Point	SR-68	New 4 travel lanes (arterial)
Pony Express Parkway	Lake Mountain Blvd	SR-68	New 6 travel lanes (arterial)
2300 West (Lehi)	1000 South (Lehi)	Thanksgiving Way (Lehi)	Widen and build 4 lanes (arterial)
Lake Mountain Boulevard	SR-73	Eagle Mountain	New 4 travel lanes (arterial)
Remaining Arterial and Collector Network	MAG Long Range Transportation Plan		
City and County Growth Projections	GOPB Controls, Published MAG and WFRC Forecasts		

Source: No Build Memorandum, Interplan, July 2006

Overall, the No Build Alternative would not meet the project purpose and need as documented in Chapter 1. The No Build Alternative would not reduce congestion or accommodate projected growth in the region nor would it improve safety along the Project corridor.

### 2.3.1.2 TSM/TDM Alternative

Transportation System Management (TSM) improvements are measures to improve the efficiency of the roadway network, such as intersection turn lane additions, new signalized intersections, improved signal timing, and signal coordination. In evaluating TSM



improvements, it was assumed that these projects would be implemented in conjunction with the No Build Alternative.

Transportation Demand Management (TDM) programs are designed to reduce travel demand by encouraging the use of transit and carpools. These programs have typically been implemented by large employers who promote and support TDM projects. Currently, there are no large employers in the study area to help sponsor TDM initiatives. However, as the cities in the study areas continue to develop, new TDM opportunities may arise.

Analysis for the SR-68 corridor indicates that TSM/TDM improvements alone increase roadway capacity by about 500 vehicles per day (vpd) over the No Build Alternative (given the existing configuration of SR-68). This would provide a minor, short-term improvement to capacity, but would not adequately address future needs for the roadway. Without long-term improvements, congestion relief is not anticipated and safety improvements associated with enhanced mobility will not be achieved. Therefore, this alternative will not meet the project purpose and need to reduce congestion and improve safety.

#### **2.3.1.3 Transit Only Alternative**

Currently, there is limited transit service available within the project corridor. The Transit Only Alternative was envisioned to provide new bus service and incorporate bus service from Eagle Mountain (west of the project corridor), and Saratoga Springs to the Lehi area (east of the project corridor). Density and development along the project corridor does not support higher capacity modes such as light rail and commuter rail.

Improved transit service would reduce projected daily traffic volumes along the corridor but will not reduce them enough to provide an acceptable LOS. Transit service alone will not make improvements to the roadway such as shoulder improvements and wildlife crossings that would enhance safe travel. Therefore, this alternative does not meet the project purpose and need because it would not provide adequate congestion relief and would not improve safety conditions along the roadway. The Proposed Action will not limit the future development of bus service along the project corridor (between Saratoga Springs, Eagle Mountain, Lehi, Bluffdale, and other cities in Utah and Salt Lake Counties).

#### **2.3.1.4 Combination of TSM/TDM, Transit and Three Lane Alternatives**

This alternative assumes that the Three Lane Alternative is enhanced with the improvements from the TSM/TDM and Transit Alternatives. With this alternative, SR-68 is widened to three lanes within the project corridor, TSM/TDM enhancements and projects are integrated into the proposed project and transit is added along the corridor.

This alternative would reduce the projected daily traffic volume, but volumes will remain higher than capacity. The center turn lane and shoulder improvements will improve safety conditions on the roadway. Because volumes would remain high, this alternative will not achieve an acceptable LOS and therefore, will not sufficiently reduce congestion on the roadway. Continued congestion will also contribute to unsafe travel conditions. Therefore, this alternative does not meet the project purpose and need.

#### **2.3.1.5 Seven Lane Alternative**

This Alternative would widen SR-68 to a seven lane roadway, with three travel lanes in each direction and a center turn lane. This design would be similar to the Five Lane Alternative, but with one more through lane in each direction. With a seven lane cross-section, SR-68 capacity could accommodate 67,000 vpd.



This alternative would provide more than sufficient capacity to reduce congestion and would meet the project purpose and need goal to achieve LOS D. Alternatives that met the project purpose and need and objectives were evaluated for potential environmental impacts. The environmental analysis compared direct impacts for right-of-way and relocations. The right-of-way footprint for the Seven Lane Alternative would be larger than the right-of-way footprint for a five lane alternative. The increased footprint would result in higher environmental impacts on adjacent properties than would occur for other alternatives. Therefore, the Seven Lane Alternative was eliminated from consideration due to higher environmental impacts when compared to other alternatives which could meet the project purpose and need.

#### **2.3.1.6 Three Lane (Center Turn Lane) Alternative**

With the Three Lane Alternative, SR-68 would include one northbound lane, one southbound lane, and a center turn lane. This alternative would also include construction of shoulders, sidewalks, curbs, gutters, and a parkstrip. The center turn lane would improve the safety and capacity of the roadway, increasing daily capacity of the roadway to approximately 22,000 vpd (500 more vpd than the No Build).

The Three Lane Alternative would not increase capacity along the corridor to an acceptable LOS and would not meet future traffic volume demands. It would provide safety enhancements associated with the center turn lane and roadway improvements. Because this alternative would not result in an acceptable LOS it would not adequately reduce congestion on the roadway. Continued congestion would also contribute to unsafe travel conditions. Therefore, this alternative would not address congestion relief and safety improvement to sufficiently meet the project purpose and need.

#### **2.3.1.7 Five Lane Alternative (Proposed Action)**

With the Five Lane Alternative, SR-68 would be widened to five lanes with two northbound and two southbound travel lanes, and a center turn lane. The widened roadway would have a capacity of about 44,500 vpd and accommodate transportation demand and correct design deficiencies to improve safety.

This alternative would provide adequate capacity to reduce congestion to an acceptable level. Roadway improvements combined with congestion relief would enhance safety on the roadway. These improvements have been noted in the plans of both WFRC and MAG Metropolitan Planning Organizations and would be consistent with those plans. This alternative was screened against environmental concerns associated with potential right-of-way and relocations impacts to adjacent properties. Environmental screening determined that the proposed five-lane footprint would result in lower environmental impacts than the larger, seven-lane footprint considered above. Therefore, this alternative will be studied in the Environmental Assessment and is the Proposed Action.

Table 2-2, Alternatives Screening Summary, includes the criteria for screening each of the alternatives discussed above.



TABLE 2-2, ALTERNATIVES SCREENING SUMMARY

Screening Criteria	No Build	TSM/TDM	Transit Only	Combination of TSM/TDM, Transit, Three Lane	Seven Lane	Three Lane	Five Lane
Level of Service – Mainline (2030)	Capacity would not increase and LOS would remain at F	Capacity would not increase and LOS would remain at F	Capacity would not increase and LOS would remain at F	Capacity would not increase and LOS would remain at F	Capacity would increase and LOS would improve to D	Minor Capacity improvement, LOS would remain at F	Capacity would increase and LOS would improve to D in most of corridor
Level of Service – Intersections (2030)	LOS at intersections would not change	LOS at intersections would not change	LOS at interchanges would not change	LOS at interchanges would not change	Congestion at intersections would decrease	LOS at interchanges would not change	Congestion at intersections would decrease
Safety	No safety improvements provided	No safety improvements provided	No safety improvements provided	No safety improvements provided	Improvements would increase safety	Minor improvement to safety from center turn lane	Improvements would increase safety
Improve Connectivity	No improvement	No improvement	No improvement	No improvement	Connectivity improved	No improvement	Connectivity improved
Infrastructure that is an asset to the community	No change to existing roadway	No change to existing roadway	No change to existing roadway	No change to existing roadway	Improvements would enhance roadway	Improvements would enhance roadway	Improvements would enhance roadway
Access Management	No improvements to existing access will occur	No improvements to existing access will occur	No improvements to existing access will occur	No improvements to existing access will occur	Improvements would better manage access	No improvements to existing access will occur	Improvements would better manage access
Improve Emergency Vehicle Response Time	Response times will increase as traffic congestion worsens	Minor improvement in response times may occur	Minor improvement in response times may occur	Minor improvement in response times may occur	Response times would decrease with improved mobility	Minor improvement in response times may occur	Response times would decrease with improved mobility
Right of Way Impacts	No change to existing ROW	No change to existing ROW	No change to existing ROW	No change to existing ROW	Increased footprint with greatest ROW impacts	No change to existing ROW	Increased footprint with moderate ROW impacts
Meets Purpose and Need and Objectives? And why	No - makes no improvement to corridor	No - poor congestion relief and no safety improvements	No - poor congestion relief and no safety improvements	No - poor congestion relief and no safety improvements	Yes - provides congestion and improves safety, most potential impacts to right-of-way and relocations	No - no congestion relief and safety improvements	Yes - provides congestion and improves safety, some impacts to right-of-way and relocations
Carry Forward in EA?	Yes, required for comparison of Proposed Action	No	No	No	No, potential impacts greater than Five Lane which also meets the transportation need	No	Yes



### 2.3.2 Summary of Traffic Analysis for Alternatives Screening

Traffic analysis was used to estimate the roadway LOS for each alternative based on the projected 2030 daily traffic volumes. Future roadway traffic volumes were obtained using the WFRM/MAG Regional Travel Demand Model, Version 5.0 (Fall 2006). Roadway capacities for three, five, and seven lane cross sections were developed using the *Highway Capacity Manual* Arterials planning methodology. Table 2-3, Daily Volume Level of Service Criteria, shows how LOS relates to speed and daily traffic volume.

TABLE 2-3, DAILY VOLUME LEVEL OF SERVICE CRITERIA

Level of Service	Speed (mph)	Average Daily Traffic vehicles per day (vpd)		
		Three Lanes	Five Lanes	Seven Lanes
A	>35	n/a*	n/a*	n/a*
B	28 – 35	<16,500	<36,000	<55,500
C	22 – 28	16,500 – 19,500	36,000 – 39,500	55,500 – 59,500
D	17 – 22	19,500 – 21,000	39,500 – 42,000	59,500 – 63,000
E	13 – 22	21,000 – 22,000	42,000 – 44,500	63,000 – 67,000
F	<13	>22,000	>44,500	>67,000

\* LOS A not possible given assumptions below.

Assumptions: 45 mph free flow speed, Class II arterial, 15% turns from exclusive lanes, 9.5% of daily traffic in the peak hour, 60/40 directional split, 0.94 peak hour factor, two traffic signals per mile, 120 second cycle length, 0.55 effective green ratio, and intersection arrival type 4.

The results of the screening analysis are summarized in Table 2-4, Alternative Analysis. The analysis concludes that five lanes are needed to meet UDOT's goal for LOS D in 2030.

TABLE 2-4, ALTERNATIVE ANALYSIS

Alternatives	Segments			Anticipated 2030 Volume	Approx. Capacity	2030 Level of Service
	From	To	Length (miles)			
No Build	Pony Express	SR-73	2.2	28,500	21,500	F
	SR-73	County Line	3.3	27,400	21,500	F
	County Line	14400 South	4.0	29,000	21,500	F
	14400 South	Bangerter Hwy	0.8	29,700	21,500	F
TSM/TDM	Pony Express	SR-73	2.2	28,500	22,000	F
	SR-73	County Line	3.3	27,400	22,000	F
	County Line	14400 South	4.0	29,000	22,000	F
	14400 South	Bangerter Hwy	0.8	29,700	22,000	F
Transit Only	Pony Express	SR-73	2.2	28,500	21,500	F
	SR-73	County Line	3.3	27,400	21,500	F
	County Line	14400 South	4.0	29,000	21,500	F
	14400 South	Bangerter Hwy	0.8	29,600	21,500	F



TABLE 2-4, ALTERNATIVE ANALYSIS

Alternatives	Segments			Anticipated 2030 Volume	Approx. Capacity	2030 Level of Service
	From	To	Length (miles)			
Combination of TSM/TDM, Transit, and 3-Lane	Pony Express	SR-73	2.2	28,000	22,500	F
	SR-73	County Line	3.3	28,700	22,500	F
	County Line	14400 South	4.0	29,500	22,500	F
	14400 South	Bangerter Hwy	0.8	30,000	22,500	F
Seven Lane	Pony Express	SR-73	2.2	47,000	67,000	B
	SR-73	County Line	3.3	50,500	67,000	B
	County Line	14400 South	4.0	50,500	67,000	B
	14400 South	Bangerter Hwy	0.8	54,000	67,000	B
Three Lane	Pony Express	SR-73	2.2	28,000	22,000	F
	SR-73	County Line	3.3	28,700	22,000	F
	County Line	14400 South	4.0	29,500	22,000	F
	14400 South	Bangerter Hwy	0.8	30,000	22,000	F
Five Lane (Proposed Action)	Pony Express	SR-73	2.2	37,000	44,500	C
	SR-73	County Line	3.3	40,500	44,500	D
	County Line	14400 South	4.0	41,500	44,500	D
	14400 South	Bangerter Hwy	0.8	44,500	44,500	E

## 2.4 ALTERNATIVES TO BE STUDIED IN THE EA

Based on the screening analysis the No Build and Five Lane Alternative (Proposed Action) are advanced for further study in this EA. The potential economic, social and environmental impacts to the natural and built environment have been studied and results are included in Chapter 3.

The No Build Alternative fulfills the NEPA “No Action” requirement and provides a baseline to which potential impacts of the Proposed Action are compared.

## 2.5 RELATED PROJECTS

The related transportation projects adjacent to the Proposed Action are discussed in this section. Each is either currently being studied or will be studied under a separate environmental document and therefore, have independent utility.

### Pony Express Parkway

Pony Express Parkway currently exists in Eagle Mountain. Saratoga Springs transportation plan shows this roadway extending into their city, intersecting with SR-68 (southern project limit) sometime in the future.



## Mountain View Corridor (MVC)

New freeway alternatives being evaluated in a Draft Environmental Impact Statement (DEIS). The following alternatives are being considered for this project:

- Southern Freeway Alternative

This alternative consists of a six lane north-south freeway coming from Salt Lake County on the north end, transitioning to an east-west freeway just north of Utah Lake, connecting to I-15 just south of the existing Pleasant Grove/Lindon exit. The alignment is approximately 15 miles in length with grade-separated interchanges. One interchange would be constructed at SR-68 (see Figure 2-6). This alternative would include an interchange with SR-68 near the future Pony Express Parkway.

- 2100 North Freeway Alternative

This alternative consists of a six lane north-south freeway coming from Salt Lake County on the north end and splitting apart and terminating at two different locations in Utah County. One part of the freeway continues to the south and terminates at the existing road SR-73 (Lehi Main St.). The other part of the freeway turns to the east at 2100 North and connects with I-15 at the existing 1200 West interchange. These alignments are approximately 10 miles in length with grade-separated interchanges. One interchange would be constructed at SR-68 as shown in Figure 2-6.

- Arterials Alternative

This alternative consists of a six lane north-south freeway coming from Salt Lake County on the north end and terminating at the existing road SR-73 (Lehi Main St.). This portion of the alternative is approximately seven miles in length, with grade separated interchanges. In addition, there are three east-west arterial components of this alternative:

- 1) A six lane arterial at 1900 South; connecting SR-68 on the west with I-15 on the east; approximately seven miles in length with at-grade intersections. A new intersection would be created with SR-68 near the future Pony Express Parkway.
- 2) A six lane arterial at 2100 North; connecting the MVC freeway on the west with I-15 on the east; approximately four miles in length with at-grade intersections. This alternative intersects SR-68 at 2100 North.
- 3) A six lane arterial at the Porter Rockwell location (approximately 150<sup>th</sup> South in Salt Lake County); connecting the MVC Freeway on the west with I-15 on the east, at 14600 South; approximately five miles in length with at-grade intersections. This alternative intersects SR-68 in Bluffdale.

- In addition to the geographic alternatives, tolling options for each highway alternative are being considered and analyzed. The right-of-way footprint is the same for all tolled and non-tolled options; however, the number of lanes for the tolled options is reduced by one lane in each direction due to anticipation of less travel demand.



### **Porter Rockwell Boulevard**

New east-west arterial in Bluffdale (part of the MVC environmental study).

### **East West Connector**

New east-west arterial in northern Utah County (being evaluated in a future environmental study).

### **2100 North**

New east-west arterial in northern Utah County (portion of one MVC alternative, may be studied in the future as an east-west arterial).

### **14400 South Intersection Improvements**

Improvements to existing signalized intersection in Bluffdale (being studied as a separate project).

### **Other Local Roadways**

Saratoga Springs, Lehi, and Bluffdale are planning new roadways or improvements to existing roads. These roads are shown on their respective city transportation plans.